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Population Analyses

Alberta and Regional Population Parameters for Educational Projection and Planning

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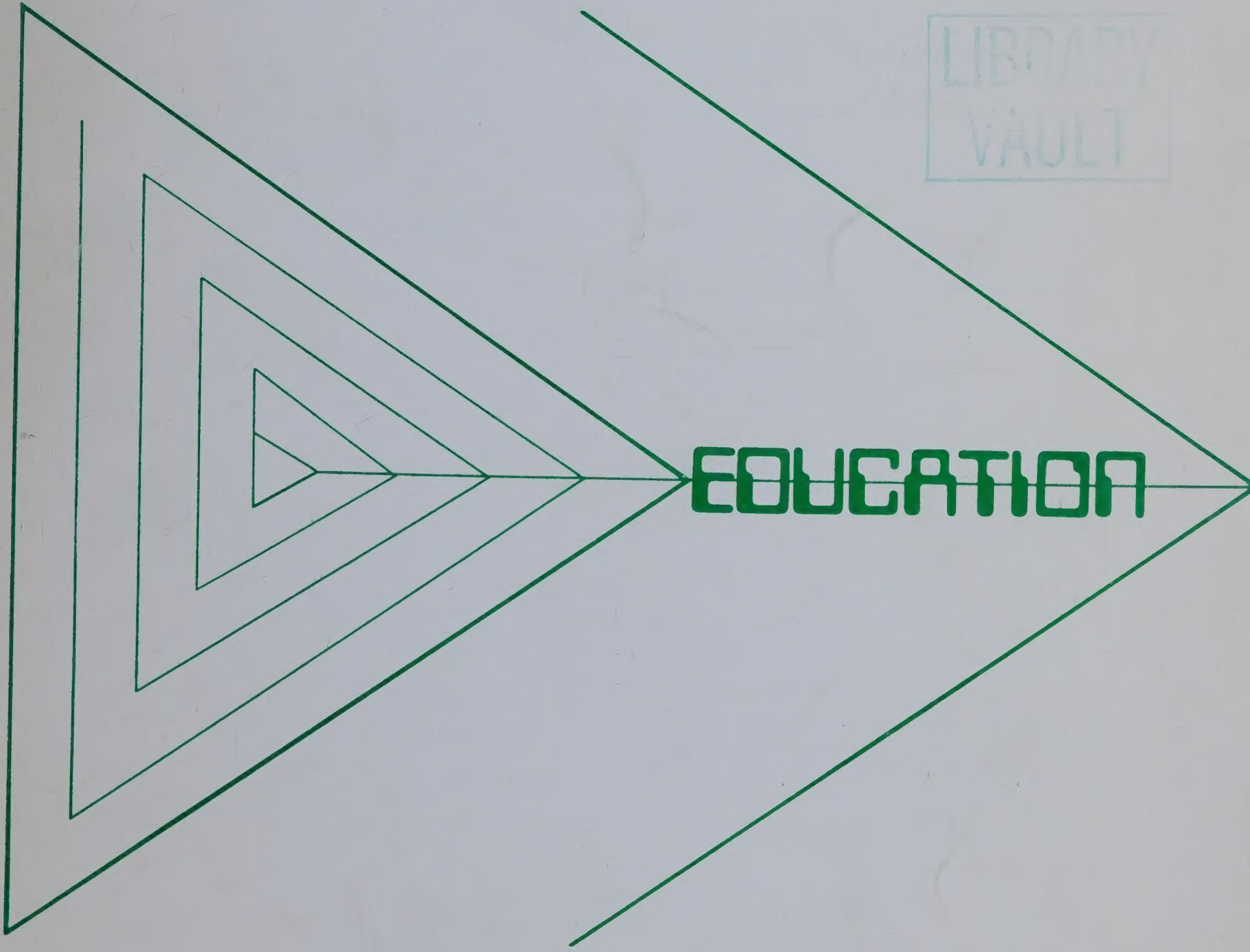

May 1972

Alberta Colleges Commission

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MASTER PLANNING MONOGRAPH #6

POPULATION ANALYSES

ALBERTA AND REGIONAL POPULATION PARAMETERS FOR EDUCATIONAL PROJECTION AND PLANNING

Prepared by

N. J. CHAMCHUK

for the

ALBERTA COLLEGES COMMISSION

April, 1972

FOREWORD

One of the major tasks in planning for post-secondary education is to collect and analyse demographic data. While many agencies engage in data collection and analysis, their publications seldom draw all of the comparisons required for planning purposes.

This monograph assembles data collected and processed by other agencies and at the same time draws those comparisons specifically required in the Alberta Colleges Commission Master Planning Project. Enrolment ratios, dependency ratios, distribution of students at post-secondary institutions, and regional participation ratios are but a few of the comparisons and statistics contained in this monograph, which are required in planning for the growth and development of the post-secondary non-university system.

The monograph fulfills a second major need in planning by projecting future enrolment figures on the basis of a variety of assumptions and policy decisions. These projections serve as vehicles for testing the likely implications of recommended policy decisions relative to the provision of educational services to the residents of this Province.

Data assembled in this monograph form the basis upon which enrolment objectives will be prepared and recommended for adoption in a Master Plan for Post-Secondary Non-University Education. These same data should also prove useful for planners, policy makers, and administrators at all levels of education in the Province of Alberta.

R. A. Bosetti,
Director of Planning & Research.

ACKNOWLEDGMENTS

One of the most difficult tasks following completion of a report is to allocate proper acknowledgment to contributors to the success of the efforts. Several sources of information prerequisite to this report can readily be identified: The Alberta Human Resources Research Council (HRRC) for projected demographic data, Statistics Canada (formerly DBS) for census-based demographic information, the Alberta Universities Commission for various statistical descriptors of the university student population, and the officers of various non-degree post-secondary institutions for their willingness to extract and supply information on enrolment with relatively short notice.

That section of the report which deals with enrolment and participation provides several sets of calculated enrolments and describes the basis for allocation of these among the institutional types. The selection of alternative biases may readily provide different calculation results, and the development of novel delivery systems may permit increased departure from established enrolment ratios. The terminal portions of this report are presented as contingency effects: if this happens, then this is the expected result. The conclusions are not intended to provide predictive nor prescriptive outcomes for the post-secondary system.

Finally, I wish to thank Mr. N. Clarke for the stimulation to embark on the project, Mr. R. Bosetti for the encouragement and indulgence to proceed with the development, and Mrs. J. Bykewich for her diligence in typing the manuscript and her patience in re-working extensive revisions.

N. J. C.

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POPULATION AND PARTICIPATION

Although post-secondary education is conceptually associated with institutions, particularly with buildings, it is inevitably concerned with people and their development for personal and social functioning.

The purpose of this paper is to describe various population parameters related to servicing the post-secondary educational needs of the population of Alberta and to use such parameters to project future enrolment alternatives. The statistics are primarily descriptive, and to a large extent are restatements of data collected and processed by other agencies. Original tabulations are generally limited to comparisons not previously drawn by other agencies, or to items previously uncollected by others but necessary to complete obvious information gaps.

This paper contains five main areas of review:

(a) historical, current, and projected populations;

(b) regional distributions of population;

(c) distributions of populations according to various parameters such as age, occupation, educational attainment, income and dependency;

(d) enrolment and participation ratios; and

(e) enrolment projections based on various contingencies.

Alberta Population

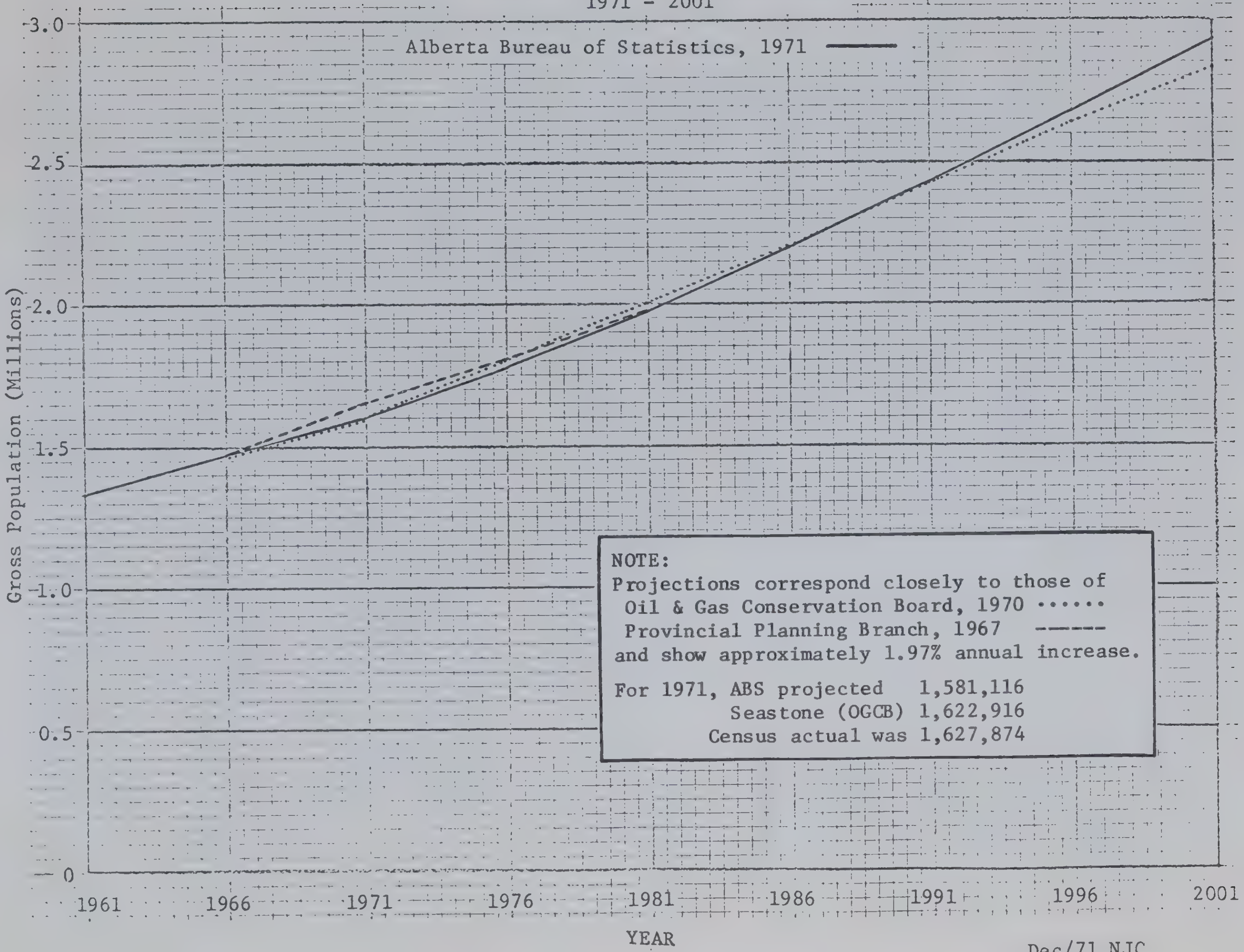
The population in Alberta has been tabulated and forecast by several researchers. The report recently compiled for the Human Resources Research Council (HRRC) forms one of the most comprehensive reviews (Seastone, 1971). The Alberta Bureau of Statistics (ABS) of the Department

of Industry and Tourism provides other information updating Statistics Canada census data and developing projections. These sources and others were used in compiling projections for Alberta for colleges planning purposes (Clarke, 1971). Assuming no major calamities occur, and that the pace of industrial development will not deviate appreciably from historical patterns, a continued increase in population at the rate of slightly less than two percent per year has been projected. Figure 1 depicts the data by sources. For college planning purposes, however, the disaggregation of data as the basis of selected age groups, sex, and regional distribution by census division or other areas is necessary.

Alberta population by selected age groups and sex. The age group conventionally serviced by the college-level system has been that of young adults. Within the context of the total formal educational system and the economic social organization, statistics have been disaggregated into five age groups. The selected groups represent the major phases of activity during the educational and economic life span of an individual. The first is Childhood (C), 0-5 years of age, generally under domestic care. The second is Education (E), 6-17 years of age and generally attending public school as a major activity. The third is Vocational Preparation (V), 18-24 years of age, during which attendance at a post-secondary level (if it occurs at all) is most likely. The fourth is Work (W), 25-59 years of age, during which the person is most likely to be "gainfully employed." With respect to the two latter categories, it is readily acknowledged that a substantial portion of young adults go directly into the labor force without post-secondary education, some with less than the equivalent of

Figure 1

Projection of Alberta Population
1971 - 2001



NOTE:
Projections correspond closely to those of
Oil & Gas Conservation Board, 1970 ······
Provincial Planning Branch, 1967 ------
and show approximately 1.97% annual increase.

For 1971, ABS projected 1,581,116
Seastone (OGCB) 1,622,916
Census actual was 1,627,874

Dec/71 NJC

secondary school graduation. The productive economic involvement of many persons past age 60 is similarly acknowledged. Further, the domestic occupation of many females (although decreasingly so) and some males within the home rather than in remunerative employment is also recognized. The fifth category is Retirement (R), age 60+. These five categories have been selected for analytical purposes even though they have limitations and are not intended to be predictive for persons in a particular age group. The grouping will facilitate analysis of the effects of labor force participation, and will provide a basis of describing developing life patterns which depart from the C-E-V-W-R pattern, most frequently becoming C-E-V-W-V-W-V-W-R or some similar cyclical permutation.

Population and projections by selected age group and sex for selected years from 1971-2001 are given in Table 1 (reproduced from Clarke, 1971: 21), and are depicted as percentages of the total population projected for each selected year in Figure 2.

From Table 1, the projections indicate that most age groups will increase in numerical magnitude over the time period with two exceptions. The Education (6-17) group will decrease from 1971 to 1976 but increase thereafter. The same decrease will be reflected in the Vocational Preparation (18-24) group between 1981 and 1986.

Several general observations may be drawn from Figure 2:

1. The Childhood age group (0-5) will increase until 1986 and then decrease to a stable proportion of 13 percent.

2. The Education group (6-17) will decrease slightly until 1981 but will then increase to a stable proportion of approximately 24 percent.

Table 1

Alberta Population by Selected Age Groups and Sex
1971 - 2001

Age Group	Name[1]	1971 Population	1971 % Males	1971 % of Total	1976 Population	1976 % Males	1976 % of Total	1981 Population	1981 % Males	1981 % of Total	1986 Population	1986 % Males	1986 % of Total	1991 Population	1991 % Males	1991 % of Total	1996 Population	1996 % Males	1996 % of Total	2001 Population	2001 % Males	2001 % of Total
0- 5 C	Early Childhood	199,702	50.7	12.4	237,465	50.7	13.3	279,545	50.8	14.1	316,395	50.8	14.4	335,734	50.9	13.8	353,775	50.8	13.2	387,268	50.8	13.2
6-17 E	Education	426,266	51.0	26.5	422,435	50.7	23.7	433,700	50.7	21.9	499,977	51.0	22.7	578,465	50.6	23.8	641,685	50.6	24.0	684,338	50.7	23.4
18-24 V	Higher Ed.-Work	189,114	50.0	11.8	231,002	51.1	13.0	259,369	50.7	13.1	244,195	50.9	11.1	252,971	50.1	10.4	298,347	50.5	11.2	346,530	50.4	11.8
25-39 W	Work-Cont. Ed.	298,362	49.6	18.6	342,169	49.9	19.2	413,737	50.9	20.9	494,744	50.5	22.4	542,422	50.8	22.3	556,500	50.3	20.8	578,927	50.2	19.8
40-59 W	Work-Cont. Ed.	326,660	51.6	20.3	354,576	51.3	20.0	374,272	49.4	18.9	396,761	48.7	18.0	440,680	49.6	18.1	511,319	50.6	19.2	601,846	50.3	20.6
60+ R	Work-Retire	168,256	51.1	10.5	192,200	49.8	10.8	220,212	49.0	11.1	252,530	48.4	11.5	284,392	49.7	11.7	309,727	49.4	11.6	328,815	47.6	11.2
TOTAL*		1,608,335**	50.7	100.0	1,779,814	50.4	100.0	1,980,806	50.3	100.0	2,204,578	50.0	100.0	2,434,632	49.9	100.0	2,671,320	49.7	100.0	2,927,687	49.8	100.0

Source: A.B.S. detailed computer printouts of "high more likely (net in-migration=5000 per year) projections," 1967-2001.

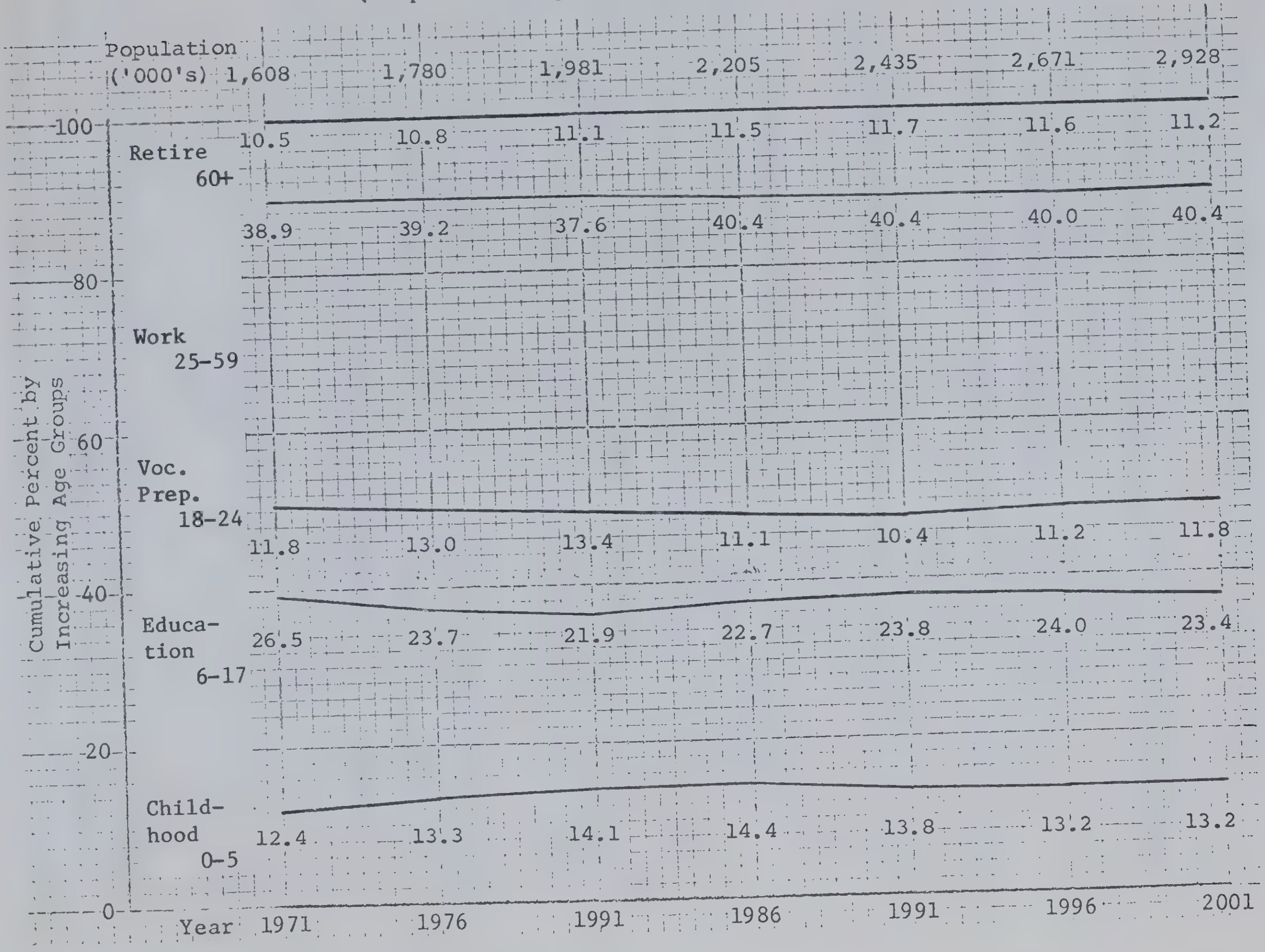
*Errors due to rounding of fractional number of persons generated in calculating projections.

**1971 Census actual = 1,627,874.

[1] Clarification suggested by N. Chanchuk, Alberta Colleges Commission.

Figure 2

Alberta Population by Selected Age Groups and Time Intervals
(as percent of gross projected population)



3. The Vocational Preparation group (18-24) will increase to 13 percent by 1981, then decrease to 10 percent by 1991, and then increase again to 12 percent by 2001.

4. The Work group (25-59) will increase fractionally from 39 percent in 1971 to 40 percent in 2001.

5. The Retirement group (60+) will increase slightly from 10 percent in 1971 to 12 percent in 1991 and then decrease to 11 percent in 2001.

Two additional implications for the post-secondary sector may be drawn.

If the present enrolment ratio of service is to be maintained (enrolment ratio defined as 100 enrolment/${}_{18}P_{24}$), then the number of students to be accommodated should increase by thirty percent from 1971 to 1981, remain relatively constant from 1981 to sometime after 1991, and then increase again. Such a pattern may have implications for the phasing of expansion of services.

The second implication concerns the ability of the public to support educational services. One statistic that can be used for comparative purposes is the dependency ratio. The standard dependency ratio used by demographers is:

$$\text{D. R.} = \frac{{}_{0}P_{14} + {}_{65}P_{\infty}}{{}_{15}P_{64}} \times 100$$

where ${}_{i}P_{j}$ is the number of persons between the ages of i and j inclusive for a particular year or census period (Keyfitz, 1971:49). The measure is a ratio or index of the number of persons in the labor force age group,

compared to the number who are dependent, engaged in domestic duties, and retired.

For Alberta, the dependency ratio is projected to be higher than for Canada or the United States. A modified form has been selected for comparative purposes with age 20 as the entry into labor force and age 60 retirement. Table 2 provides dependency ratios calculated from the population projections.

Assuming relatively constant patterns of employment, dependence, and retirement, and all other factors remaining equal, relative demands by post-secondary education will gradually ease until 1981, will become more demanding until 1991, and ease again until 2001.

Regional populations. While gross population statistics and projections may be of some value in anticipating the numbers of persons to be served by post-secondary education in the province, such data are too generalized to be of much service in planning. Statistics for ${}_{18}P_{24}$ are more helpful as a base, but consideration must be given to variation in aspirations of students attributable to such factors as economic status, ethnic and other predispositions, and geographic and other factors influencing accessibility. Furthermore, projections for institutions have been somewhat complicated by the fact that, previously, service areas were not clearly delineated. A brief review of existing institutions and programs may be helpful in setting the context.

In the public school sector, a limited number of centers offer vocational education in business or technical fields at a level that may

Table 2

Dependency Ratios for Selected Years in Alberta, 1966-2001, Based on Projected Populations

Year	Dependency Ratio
1966	117.86
1971	112.70
1976	107.60
1981	103.79
1986	105.83
1991	110.22
1996	103.25
2001	105.84

Where D.R. $= \dfrac{{}_{0}P_{19} + {}_{60}P_{\infty}}{{}_{20}P_{59}} \times 100$

and ${}_{0}P_{19}$ = population of age group 0-19 inclusive.

${}_{60}P_{\infty}$ = population age 60 and over.

${}_{20}P_{59}$ = population between 20 and 59 inclusive.

Note: The labour force (economically employed) is somewhat less than ${}_{20}P_{59}$ since a substantial portion of females are engaged in domestic duties.

prepare graduates for employment. As may be expected, their existence outside of major population centers is limited. Table 3 provides a list of centers and their enrolments for the 1971-72 academic term. Figure 3 shows their geographic distribution.

At the college level (including public and private colleges, technical institutes, agricultural and vocational colleges, adult vocational schools) the pattern of operation is more diverse, but centers are less widely distributed. Figure 4 shows the location of various centers. As may be expected, the centers are closely associated with the existence of dense population centers.

Although university facilities exist only in Edmonton, Calgary, and Lethbridge, affiliation agreements with colleges permit local access (where enrolments are feasible) to the first two years of the undergraduate program of some faculties at Medicine Hat, Red Deer, and Grande Prairie.

A review of service areas was made in a separate occasional report (Chamchuk: OC-13, 1972). On the basis of such information, and since most demographic statistics are available only from federal census data, census divisions were adopted for regional analytical and planning purposes for this report.

This procedure departs slightly from Clarke's adaptation of Hanson's divisions in that it permits allocation of geographic areas to the service area of an institution for subsequent planning rather than associating service areas with institutions at the outset.

Table 3

Composite High Schools and Enrolments,
Alberta, 1971-72

Census Division	Center	Enrolment	
		Grade XII	Total X-XII
1	Medicine Hat	553	1,655
2	Lethbridge	668	1,988
	Taber		
	Brooks		
3	Claresholm	133	408
	Cardston		
	Pincher Creek		
4	Hanna		
5	Drumheller	216	684
	Vulcan		
6	Calgary	7,362	22,610
	Olds		
	High River		
7	Stettler	n/a	n/a
	Wainwright		
8	Red Deer	670	1,766
	Ponoka	182	643
	Lacombe	210	610
	Rocky Mtn. House		
9	Crowsnest Past		
10	Camrose	284	709
	Vegreville	151	457
	Viking		
	Vermilion		
11	Edmonton	6,805	20,704
	Wetaskiwin	218	632
	Sherwood Park	342	1,047
	Drayton Valley		
	Fort Saskatchewan		
	Leduc		
	St. Albert		
	Stony Plain		

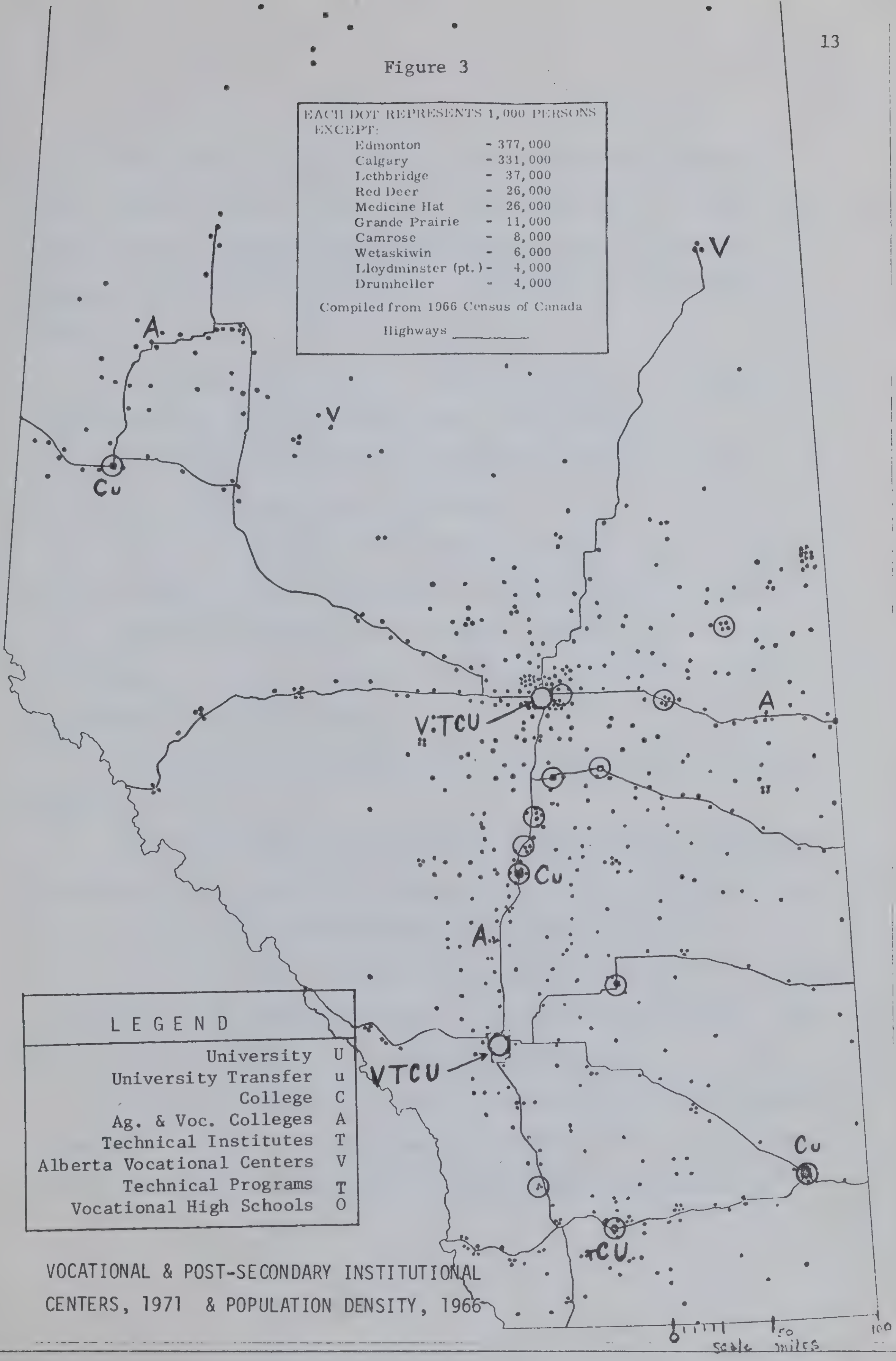
Concluded . . .

Table 3 (Concluded)

Census Division	Center	Enrolment Grade XII	 Total X-XII
12	St. Paul Bonnyville Grande Center Lac La Biche	206	622
13	Athabasca Barrhead Westlock Thorhild Onoway Mayerthorpe		
14	Evansburg Edson Hinton		
15	Grande Prairie Peace River Spirit River High Prairie Beaverlodge Sexsmith Donnelly	360	1,145

NOTE: Centers were identified by Dr. J. D. Harder and Mr. W. Worbets, Inspectors of High Schools. Centers for which enrolments are reported have both business and vocational education programs. Others have only business education programs. Enrolments are not precise since statistics were unavailable for some schools in Edmonton, Calgary, and for the school at Stettler.

Figure 3



VOCATIONAL & POST-SECONDARY INSTITUTIONAL CENTERS, 1971 & POPULATION DENSITY, 1966

Projections of populations by census division are summarized in Table 4 which is taken directly from Seastone (1971: 27). A fairly complete review of anticipated population trends is given by Seastone. Some general observations and implications are re-stated for the period 1970-2005.

Populations are expected to remain fairly stable in Census Division 1 (Medicine Hat), and C.D. 7 (Wainwright). (See Figure 4).

Populations are expected to decrease in C.D.'s 3 (Cardston), 4 (Hanna), 5 (Drumheller), and 10 (Camrose).

Populations are expected to increase moderately (between 44 percent and 84 percent) in C.D.'s 2 (Lethbridge), 8 (Red Deer), and 9 (Mountains).

Populations are expected to increase rapidly (to double or more 1970 numbers) in C.D.'s 6 (Calgary), 11 (Edmonton), 12 (Fort McMurray), 14 (Edson), and 15 (Peace River).

Projections as proportions of 1970 populations were calculated and reported in Table 5.

More specifically, and in anticipation that the major college-level clientele will be of the 18-24 age group, population projections for ${}_{18}P_{24}$ by census dividion were calculated and are reported in Table 6.

The general implication for college planning purposes is that major development can be expected for Calgary, Edmonton, and Peace River. Some expansion may be anticipated for Red Deer and Lethbridge.

More specifically, if an age 18-24 population of 5,000 persons is selected as the basis for establishment of a college, then the only new center for which future consideration may be given is Fort McMurray.

Table 4

ALBERTA'S POPULATION — TOTAL AND BY CENSUS DIVISIONS — 1951 - 2005'

Census Division	1951*	% of Total	1956*	% of Total	1961*	% of Total	1966*	% of Total	1970+	% of Total	1975+	% of Total
1	28,317	3.0	34,496	3.1	39,140	2.9	38,858	2.7	38,982	2.5	39,602	2.2
2	67,694	7.2	74,991	6.7	83,306	6.3	82,719	5.7	85,386	5.4	89,459	5.1
3	27,667	2.9	30,426	2.7	30,967	2.3	29,592	2.0	30,281	1.9	29,908	1.7
4	13,182	1.4	14,294	1.3	15,020	1.1	14,224	1.0	14,210	0.9	13,912	0.8
5	39,055	4.2	38,120	3.4	38,115	2.9	35,987	2.5	36,454	2.3	35,822	2.0
6	177,441	18.9	237,886	21.2	317,989	23.9	369,140	25.2	419,038	26.4	486,890	27.6
7	40,217	4.3	40,214	3.6	40,837	3.1	40,833	2.8	41,480	2.6	41,586	2.3
8	57,513	6.1	64,168	5.7	76,533	5.7	83,912	5.7	87,354	5.5	96,204	5.5
9	19,496	2.1	17,239	1.5	20,274	1.5	18,195	1.2	18,841	1.1	20,467	1.2
10	70,677	7.5	71,500	6.3	70,177	5.3	70,211	4.8	70,802	4.5	69,685	4.0
11	235,475	25.1	323,539	28.8	410,679	30.8	476,053	32.5	526,460	33.1	596,586	33.9
12	39,886	4.2	44,947	4.0	47,310	3.6	50,635	3.5	57,384	3.6	63,879	3.6
13	46,638	5.0	45,033	4.0	45,431	3.4	44,142	3.0	44,678	2.8	43,738	2.5
14	14,433	1.5	15,846	1.4	19,282	1.4	20,358	1.4	21,949	1.4	25,278	1.5
15	61,800	6.6	70,417	6.3	76,884	5.8	88,344	6.0	95,199	6.0	107,278	6.1
Total	939,501	100.0	1,123,116	100.0	1,331,944	100.0	1,463,203	100.0	1,588,498	100.0	1,760,589	100.0

Census Division	1980+	% of Total	1985+	% of Total	1990+	% of Total	1995+	% of Total	1999+	% of Total	2005+	% of Total
1	40,466	2.1	41,265	1.9	41,600	1.7	41,446	1.6	41,151	1.5	40,666	1.3
2	94,906	4.8	100,981	4.7	106,780	4.5	111,994	4.3	116,210	4.2	123,348	4.1
3	29,727	1.5	29,497	1.4	28,804	1.2	27.671	1.1	26,629	1.0	25,044	0.8
4	13,757	0.7	13,624	0.6	13,350	0.6	12,885	0.5	12,447	0.5	11,776	0.4
5	35,414	1.8	34,908	1.6	33,923	1.4	32,445	1.2	31,112	1.1	29,029	1.0
6	563,504	28.9	647,707	29.8	734,878	30.8	823,221	31.7	895,992	32.4	1,011,196	33.3
7	41,976	2.1	42,350	2.0	42,294	1.8	41,709	1.6	41,077	1.5	40,105	1.4
8	106,314	5.4	117,217	5.3	127,983	5.4	138,498	5.4	147,096	5.3	160,842	5.3
9	22,220	1.1	24,025	1.1	25,799	1.1	27,552	1.1	29,031	1.1	31,397	1.0
10	68,662	3.5	67,307	3.1	65,077	2.7	61,866	2.4	58,920	2.1	54,283	1.8
11	675,576	34.5	761,541	35.1	848,924	35.5	935,596	36.0	1,006,122	36.4	1,117,164	36.9
12	73,464	3.8	81,813	3.8	90,358	3.8	98,509	3.8	104,983	3.8	115,108	3.8
13	42,947	2.2	41,930	1.9	40,282	1.7	38,048	1.5	36,105	1.3	33,126	1.1
14	29,227	1.5	33,062	1.5	37,004	1.6	40,901	1.6	44,051	1.6	48,970	1.6
15	119,576	6.1	133,528	6.2	147,754	6.2	161,370	6.2	172,180	6.2	189,117	6.2
Total	1,957,736	100.0	2,170,755	100.0	2,384,810	100.0	2,593,711	100.0	2,763,106	100.0	3,031,171	100.0

' As of June 1 each year

* Actual   + Estimated

Sources: Various series, **Census of Canada;** and Alberta Oil and Gas Conservation Board

Figure 4

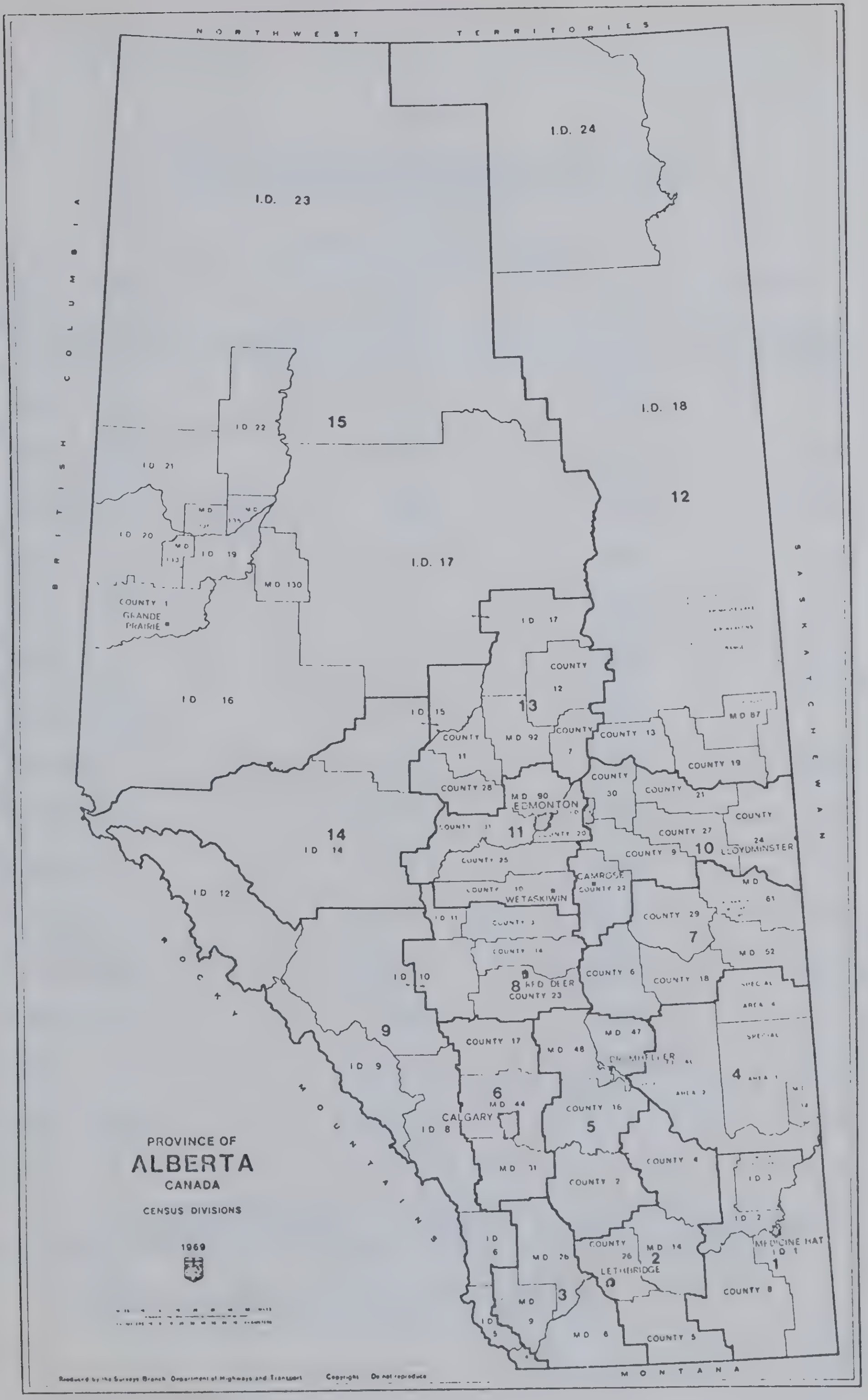

NORTHWEST TERRITORIES
BRITISH COLUMBIA
SASKATCHEWAN
ROCKY MOUNTAINS
MONTANA
I.D. 23
I.D. 24
I.D. 18
15
12
I.D. 17
I.D. 22
I.D. 21
I.D. 20
I.D. 19
M.D. 130
COUNTY 1
GRANDE PRAIRIE
I.D. 16
13
COUNTY 12
I.D. 15
COUNTY 11
M.D. 92
COUNTY 7
COUNTY 13
M.D. 87
COUNTY 19
COUNTY 28
M.D. 90
EDMONTON
COUNTY 30
COUNTY 21
COUNTY 24
14
I.D. 14
11
COUNTY 20
COUNTY 27
COUNTY 9
10
LLOYDMINSTER
I.D. 12
COUNTY 25
COUNTY 10
WETASKIWIN
CAMROSE
COUNTY 22
M.D. 61
I.D. 11
COUNTY 3
COUNTY 29
7
COUNTY 14
M.D. 52
I.D. 10
8
RED DEER
COUNTY 23
COUNTY 6
COUNTY 18
SPECIAL AREA 4
9
COUNTY 17
M.D. 47
M.D. 48
DRUMHELLER
SPECIAL AREA 2
4
SPECIAL AREA 3
I.D. 9
6
M.D. 44
CALGARY
I.D. 8
COUNTY 16
5
M.D. 31
COUNTY 4
COUNTY 2
I.D. 3
I.D. 2
MEDICINE HAT
I.D. 1
1
I.D. 6
M.D. 26
COUNTY 26
M.D. 14
2
LETHBRIDGE
3
M.D. 9
I.D. 5
M.D. 8
COUNTY 5
COUNTY 8
PROVINCE OF
ALBERTA
CANADA
CENSUS DIVISIONS
1969
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Table 5

Projected Population Changes 1970-2005 by Census Division

1970 Population = 1.00

Census Division[1]	1980	1990	2005
1. Medicine Hat	1.04	1.07	1.04
2. Lethbridge	1.11	1.25	1.44
3. Cardston	.98	.95	.83
4. Hanna	.97	.94	.83
5. Drumheller	.97	.93	.80
6. Calgary	1.35	1.75	2.41
7. Wainwright	1.01	1.02	.97
8. Red Deer	1.22	1.47	1.84
9. Mountains	1.18	1.37	1.67
10. Camrose	.97	.92	.77
11. Edmonton	1.28	1.61	2.12
12. Fort McMurray	1.28	1.57	2.01
13. Athabasca	.96	.90	.74
14. Edson	1.33	1.69	2.23
15. Peace River	1.26	1.55	1.99

[1] C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

Source: Calculated from Seastone, 1971:27.

Table 6

Alberta Population ${}_{18}P_{24}$ by Census Divisions, 1970-2005
(in thousands)

Census Division	1970	1975	1980	Year 1985	1990	1995	1999	2005
1. Medicine Hat	5.1	6.1	6.3	5.3	4.3	4.8	5.3	5.1
2. Lethbridge	11.1	14.2	14.4	13.0	11.3	12.7	14.8	16.2
3. Cardston	3.9	4.7	4.5	3.9	3.0	3.3	3.5	3.2
4. Hanna	1.7	1.9	1.7	1.4	1.3	1.3	1.5	1.3
5. Drumheller	4.5	4.7	4.5	3.8	2.9	3.0	3.2	3.3
6. Calgary	49.8	64.3	77.8	79.1	77.9	89.4	101.5	117.3
7. Wainwright	5.1	5.4	5.2	4.7	3.8	4.0	4.4	4.6
8. Red Deer	10.7	12.9	13.5	12.5	11.3	13.6	15.5	17.6
9. Mountains	2.0	2.6	2.8	3.0	2.6	2.9	3.2	3.8
10. Camrose	8.7	9.4	8.7	7.3	5.6	6.0	6.1	6.0
11. Edmonton	64.4	81.5	95.8	95.4	91.0	102.1	114.9	130.6
12. Fort McMurray	6.8	8.6	9.6	10.6	8.8	9.8	11.3	13.2
13. Athabasca	5.3	6.0	5.6	5.3	3.9	3.9	3.9	3.8
14. Edson	2.6	3.2	4.0	4.0	3.8	4.2	4.7	5.5
15. Peace River	11.3	14.6	15.5	17.3	14.3	16.0	18.5	21.5
TOTALS	191.2	240.1	269.9	266.6	245.8	280.0	312.3	353.0

Source: Calculated from Seastone, 1971: Tables 1-1 to 1-12.

Figure 5 provides a summary of types of service locally accessible to the residents by census division.

Other Statistical Descriptions

This section consolidates available data on distributions of population by occupation, income, and educational attainment for the province. The data is readily available only for the 1966 and earlier census periods but may be updated from 1971 census as data is processed.

Occupation. One description of the population is by participation in the labor force. The technical definition of the labor force includes all persons age 15 and over, answering positively to "Did you have a job of any kind last week?", followed by "Did you look for work last week?" to those responding "No" to the first question. Further delimitations are given in Catalogue 99-522 (Dominion Bureau of Statistics, 1967) which was the basic source of this compilation. (Tables 7 and 8).

Figure 5

Location of Adult Educational Services by Census Division, 1972

Census Divisions[1]	Composite High School	Nursing School	Technical Institute	Ag. & Voc. College	College	University Transfer	University
1. Medicine Hat	●	●			●	●	
2. Lethbridge	●	●	0	0	●		●
3. Cardston							
4. Hanna							
5. Drumheller	●						
6. Calgary	●	●	●	●	●	●	●
7. Wainwright	●						
8. Red Deer	●	●			●	●	
9. Mountains							
10. Camrose	●	●		●	●	●	
11. Edmonton	●	●	●		●	●	●
12. Fort McMurray	●						
13. Athabasca							
14. Edson			⊗				
15. Peace River	●			●	●	●	

Type of Service

Legend:
● Institution
0 Services by Program
⊗ Forest Technology School (Hinton)

---

[1] C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

Table 7

Percentage of the Population Age 15 and Over,
in the Labor Force, by Sex, for Canada,
1911 - 1961

Census	$_{15}P_{\infty}$			% in Labor Force		
Year	Total	Male	Female	Total	Male	Female
1911	4.818[1]	2.612	2.207	56.0	89.6	16.2
1921	5.756	2.000	2.757	54.6	88.6	17.6
1931	7.086	3.710	3.376	55.2	87.4	19.6
1941	8.297	4.274	4.023	54.2	85.8	20.7
1951	9.742	4.911	4.831	54.2	83.8	24.0
1961	12.023	6.039	5.984	53.7	77.7	29.5
1971						

Source: DBS: 99-522: 12-7, Table III.

[1] In millions, rounded to the nearest thousand.

Several observations may be made. The proportions of $_{15}P_{\infty}$ in the labor force have been decreasing.

The proportion of males in the labor force have been decreasing most rapidly.

The proportions of females in the labor force have been increasing.

Declines were attributed to increased proportions of males 15-24 attending school and males 60+ entering retirement. For females, there were declines attributed to school attendance for ages 15-17, but increases, some substantial in the participation rate for those over 18, including those over 65. (DBS, 1967: 30-31).

For the 1961 data, the population 14 years of age and over not in the labor force was accounted for by institutional inmates, males 15-24 attending school, and males 65+ retired. Of the females, exclusive of inmates, over three-quarters were married and presumed to be engaged in domestic dutires. A large proportion of the 15-19 group were attending school. Others were over 65 and presumably retired.

Table 8

Percent of the Population 15 Years of Age and Over in the Labor Force, by Sex, for Alberta, 1951-1961 and Canada, 1951-61

	1951		1961	
	Canada	Alberta	Canada	Alberta
Total Population:	14.009	0.940	18.238	1.332
Male	7.089	0.492	9.219	0.689
Female	6.921	0.447	9.019	0.643
Population 15+ Years:	9.759	0.653	12.046	0.863
Male	4.921	0.346	6.053	0.449
Female	4.838	0.306	5.994	0.414
Labor Force % of Total:	37.8	37.7	35.7	36.9
Male	58.3	59.2	51.3	52.6
Female	16.9	14.0	19.7	20.0
Labor Force % of 15+ Years:	54.3	54.2	54.0	57.0
Male	84.0	84.1	78.1	80.9
Female	24.1	20.5	29.7	31.0

Source: DBS: 99-522: 12-60, 61, Table 1.

Comments: During the period 1951-61, Alberta's population became proportionately more active in the labor force, with the increase attributable to increased participation by females.

Occupational division. Another description of Alberta's population is that of occupational division. Table 9 provides data for 1961 (DBS, 1967: 80).

Table 9

TABLE 5. Numerical and percentage distribution of the labour force,[1] 15 years of age and over, by occupation division and selected major groups and sex, showing age group, marital status and schooling, for Canada and the provinces, 1961 – Continued

No.	Occupation division	Total		Average age — Moyenne d'âge	Age group — Groupe d'âge											
					15-19		20-24		25-44		45-54		55-64		65+	
		Number — Nombre	%		Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%
		Males														
	Alberta															
16	All occupations	361,961	100.0	39	23,135	100.0	40,317	100.0	179,888	100.0	63,071	100.0	40,389	100.0	15,161	100.0
17	Managerial	37,883	10.5	43	92	0.4	1,153	2.9	20,603	11.4	9,795	15.5	4,599	11.4	1,641	10.8
18	Professional and technical	26,521	7.3	37	480	2.1	3,037	7.5	16,867	9.4	3,785	6.0	1,659	4.1	693	4.6
19	Clerical	19,471	5.4	35	1,497	6.5	4,194	10.4	8,961	5.0	2,513	4.0	1,628	4.0	678	4.5
20	Sales	19,958	5.5	35	2,348	10.1	2,628	6.5	10,438	5.8	2,738	4.3	1,247	3.1	559	3.7
21	Service and recreation occupations	28,735	7.9	38	2,093	9.0	3,817	9.5	13,618	7.6	4,011	6.4	3,448	8.5	1,748	11.5
22	Protective service	14,577	4.0	33	1,181	5.1	2,655	6.6	8,487	4.7	1,159	1.8	644	1.6	451	3.0
23	Transport and communication occupations	25,083	6.9	35	1,364	5.9	3,350	8.3	15,025	8.4	3,454	5.5	1,669	4.1	221	1.4
24	Operators, road transport	18,624	5.1	34	1,078	4.6	2,871	7.1	11,393	6.3	2,303	3.6	847	2.1	132	0.9
25	Farmers and farm workers	91,085	25.2	42	8,457	36.6	7,317	18.1	34,715	19.3	18,285	29.0	14,817	36.7	7,494	49.4
26	Loggers, fishermen, trappers and hunters	2,987	0.8	35	355	1.5	463	1.1	1,421	0.8	405	0.6	286	0.7	57	0.4
27	Miners, quarrymen and related workers	5,291	1.5	35	145	0.6	739	1.8	3,289	1.8	610	1.0	464	1.1	44	0.3
28	Craftsmen, production process and related workers.	78,135	21.6	38	3,030	13.1	9,292	23.0	42,991	23.9	13,740	21.8	7,691	19.0	1,391	9.2
29	Carpenters, cabinetmakers, sawyers and related workers.	10,659	2.9	41	271	1.2	861	2.1	5,339	3.0	2,397	3.8	1,442	3.6	349	2.3
30	Machinists, plumbers, sheet metal workers and related workers.	9,336	2.6	36	295	1.3	1,152	2.8	5,647	3.1	1,478	2.3	676	1.7	88	0.6
31	Mechanics and repairmen, except electrical and electronic.	12,942	3.6	37	471	2.0	1,643	4.1	7,279	4.0	2,388	3.8	1,000	2.5	161	1.1
32	Electricians and related electrical and electronics workers.	5,507	1.5	33	175	0.8	1,045	2.6	3,450	1.9	540	0.8	246	0.6	51	0.3
33	Stationary engine and excavating and lifting equipment operators and related workers.	11,068	3.0	37	328	1.4	1,453	3.6	6,222	3.4	1,825	2.9	1,040	2.6	200	1.3
34	Labourers[6]	18,544	5.1	35	2,927	12.6	3,426	8.5	7,172	4.0	2,505	4.0	2,058	5.1	456	3.0
35	Occupation not stated	8,268	2.3	38	347	1.5	901	2.2	4,788	2.7	1,230	2.0	823	2.0	179	1.2
		Females														
36	All occupations	127,550	100.0	36	14,765	100.0	20,948	100.0	56,925	100.0	22,690	100.0	10,037	100.0	2,183	100.0
37	Managerial	3,808	3.0	45	23	0.2	122	0.6	1,755	3.1	1,200	5.3	544	5.4	164	7.5
38	Professional and technical	20,053	15.7	36	1,376	9.3	4,479	21.4	8,356	14.7	3,814	16.8	1,688	16.8	345	15.8
39	Teachers	9,646	7.6	39	255	1.7	1,655	7.9	3,936	6.9	2,503	11.0	1,128	11.2	169	7.7
40	Health professionals	7,416	5.8	31	835	5.6	2,293	10.9	3,116	5.5	808	3.6	299	3.0	65	3.0
41	Clerical	35,846	28.1	31	4,841	32.8	8,920	42.6	16,515	29.0	4,151	18.3	1,226	12.2	193	8.8
42	Sales	11,671	9.2	37	1,666	11.3	900	4.3	5,609	9.8	2,625	11.6	751	7.5	120	5.5
43	Service and recreation occupations	30,320	23.8	37	4,631	31.4	3,525	16.8	12,004	21.1	5,981	26.4	3,322	33.1	857	39.2
44	Housekeepers, waitresses, cooks and related workers.	23,014	18.0	37	3,775	25.6	2,714	13.0	8,579	15.1	4,536	20.0	2,672	26.6	738	33.8
45	Transport and communication occupations	3,178	2.5	30	661	4.5	799	3.8	1,201	2.1	331	1.4	159	1.6	27	1.2
46	Farmers and farm workers	13,077	10.2	41	681	4.6	793	3.8	6,350	11.2	3,178	14.0	1,705	17.0	370	16.9
47	Craftsmen, production process and related workers.	5,314	4.2	35	505	3.4	769	3.7	2,767	4.9	866	3.8	350	3.5	57	2.6
48	Tailoresses, furriers, upholsterers and related workers.	2,123	1.7	39	81	0.5	210	1.0	1,111	2.0	435	1.9	244	2.4	42	1.9
49	Labourers[5,7]	1,093	0.8	34	179	1.2	143	0.7	509	0.9	184	0.8	70	0.7	8	0.4
50	Occupation not stated	3,185	2.5	35	202	1.4	498	2.4	1,859	3.3	360	1.6	222	2.2	44	2.0

For footnotes 1, 2, 3 and 4, see page 12-68.

[5] Less than 0.05 p.c.
[6] For definition of "Labourers", see page 12-9 of text.
[7] Includes primary occupations other than "Farmers and farm workers".

Comments:

Males. The major occupation divisions in which males were employed in 1961 were farming (25.2%), crafts (21.6%), and managerial (10.5%).

Females. The major occupation divisions in which females were employed in 1961 were service and recreation (including domestic services) (23.8%), clerical (28.1%), professional and technical (15.7%), and farming (10.2%).

Educational levels. Information on levels of educational attainment is generally restricted to census data for 1961. One of the difficulties with that data is that no category was provided for certifiable education in vocational training, i.e. the categories included the public school grade level attained, and the number of years of university attained, with no provision for college-level certificate, diploma, or apprenticeship programs.

Table 10

Population 5-19 Years Attending School

Year	Number (000's)	Percent of $_5P_{19}$
1901	0.893	51.1
1911	1.144	52.9
1921	1.694	61.4
1931	2.120	65.7
1941	2.132	65.3
1951	2.386	66.7
1961	4.198	78.4

Table 11

TABLE 5. Numerical and percentage distribution of the labour force,[1] 15 years of age and over, by occupation division and selected major groups and sex, showing age group, marital status and schooling, for Canada and the provinces, 1961

No.	Occupation division	Highest grade attended — Dernière année d'études atteinte							
		Elementary[3] — Élémentaire[3]		Secondary — Secondaire				University[4] — Université[4]	
				1-3		4-5			
		Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%
		Hommes							
	Alberta								
16	All occupations	138,608	100.0	129,779	100.0	59,984	100.0	33,590	100.0
17	Managerial	7,721	5.6	14,112	10.9	10,568	17.6	5,482	16.3
18	Professional and technical	892	0.6	3,205	2.5	4,947	8.2	17,477	52.0
19	Clerical	2,738	2.0	7,396	5.7	7,468	12.4	1,869	5.6
20	Sales	3,297	2.4	8,856	6.8	6,052	10.1	1,753	5.2
21	Service and recreation occupations	10,770	7.8	11,894	9.2	4,715	7.9	1,356	4.0
22	Protective service	3,474	2.5	7,161	5.5	3,068	5.1	874	2.6
23	Transport and communication occupations	9,996	7.2	11,374	8.8	3,177	5.3	536	1.6
24	Operators, road transport	8,359	6.0	8,291	6.4	1,702	2.8	272	0.8
25	Farmers and farm workers	53,245	38.4	29,021	22.4	7,230	12.0	1,589	4.7
26	Loggers, fishermen, trappers and hunters	2,171	1.6	601	0.5	174	0.3	41	0.1
27	Miners, quarrymen and related workers	2,125	1.5	2,320	1.8	697	1.2	149	0.4
28	Craftsmen, production process and related workers.	33,138	23.9	31,708	24.4	11,351	18.9	1,938	5.8
29	Carpenters, cabinetmakers, sawyers and related workers.	5,854	4.2	3,559	2.7	1,050	1.8	196	0.6
30	Machinists, plumbers, sheet metal workers and related workers.	3,521	2.5	4,308	3.3	1,340	2.2	167	0.5
31	Mechanics and repairmen, except electrical and electronic.	4,841	3.5	5,840	4.5	2,042	3.4	219	0.6
32	Electricians and related electrical and electronics workers.	891	0.6	2,621	2.0	1,756	2.9	239	0.7
33	Stationary engine and excavating and lifting equipment operators and related workers.	5,215	3.8	4,557	3.5	1,092	1.8	204	0.6
34	Labourers[6]	10,126	7.3	5,715	4.4	1,937	3.2	766	2.3
35	Occupation not stated	2,389	1.7	3,577	2.8	1,668	2.8	634	1.9
		Femmes							
36	All occupations	31,206	100.0	49,258	100.0	33,147	100.0	13,939	100.0
37	Managerial	851	2.7	1,654	3.4	1,013	3.0	290	2.1
38	Professional and technical	467	1.5	2,296	4.7	6,964	21.0	10,331	74.1
39	Teachers	114	0.4	432	0.9	1,667	5.0	7,433	53.3
40	Health professionals	162	0.5	1,148	2.3	4,314	13.0	1,792	12.8
41	Clerical	1,894	6.1	16,335	33.2	15,882	47.9	1,735	12.4
42	Sales	2,236	7.2	6,498	13.2	2,583	7.8	354	2.5
43	Service and recreation occupations	13,653	43.8	12,716	25.8	3,402	10.3	549	3.9
44	Housekeepers, waitresses, cooks and related workers.	10,296	33.0	9,755	19.8	2,536	7.6	427	3.1
45	Transport and communication occupations	307	1.0	1,861	3.8	930	2.8	80	0.6
46	Farmers and farm workers	8,106	26.0	3,858	7.8	897	2.7	216	1.5
47	Craftsmen, production process and related workers.	2,383	7.6	2,225	4.5	611	1.8	95	0.7
48	Tailoresses, furriers, upholsterers and related workers.	1,097	3.5	748	1.5	250	0.8	28	0.2
49	Labourers[6,7]	573	1.8	392	0.8	112	0.3	16	0.1
50	Occupation not stated	736	2.4	1,423	2.9	753	2.3	273	2.0

For footnotes 1, 2, 3 and 4, see page 12-68.

[5] Less than 0.05 p.c.
[6] For definition of "Labourers", see page 12-9
[7] Includes primary occupations other than "Farn

Table 12

Percent of ${}_{5}P_{14}$ and ${}_{15}P_{24}$ Populations
Attending School, Canada and Alberta,
1951 and 1961

Year	Canada		Alberta	
	5-14	15-24	5-14	15-24
1951	77.6	22.4	78.4	27.2
1961	85.5	35.6	83.4	38.2

Source: DBS Catalogue 99-520: 8 Table IV.

The table shows that Albertans have generally attended school at rates higher than the Canadian average. The 1961 rate for ${}_{5}P_{14}$ in Alberta reflects the absence of provision of kindergarten level education, whereas such a level is provided by almost all other provinces.

Similarly, the percent of ${}_{10}P_{14}$ persons not attending school has been lower in Alberta than in Canada for both census periods (4.2% vs. 7.0% in 1951; 2.1% vs. 2.9% in 1961). (DBS, 1965: 14).

The census data also confirmed that "regardless of the parent's age, children of wealthier parents are more likely to continue at school longer than children whose parents are in the lower age brackets. (DBS, 1965: 18). The relationship was substantiated by occupational data. The table of census data follows.

Table 13

10-48

TABLE 5. Numerical and percentage distribution of the population 15 years of age and over not attending school, by highest level of schooling, age and sex, for the provinces, 1961 – Concluded

TABLEAU 5. Répartition numérique et procentuelle de la population âgée de 15 ans et plus ne fréquentant pas l'école, suivant le degré d'instruction le plus élevé, l'âge et le sexe, provinces, 1961 – fin

Age and sex — Âge et sexe	Population 15 years and over not attending school — Population de 15 ans et plus ne fréquentant pas l'école	Highest level of schooling – Degré d'instruction le plus élevé									
		No schooling — N'a pas fréquenté l'école		Elementary — Élémentaire		Secondary — Secondaire		Some university — Université		University degree — Grade universitaire	
		Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%	Number — Nombre	%
Alberta	784,832	15,636	2.0	294,746	37.5	418,501	53.3	31,882	4.1	24,067	3.1
15-19	33,902	423	1.3	9,877	29.1	23,179	68.4	417	1.2	6	–
20-24	82,132	507	0.6	16,773	20.4	59,293	72.2	4,317	5.3	1,242	1.5
25-34	189,718	1,229	0.7	50,435	26.6	120,709	63.6	9,105	4.8	8,240	4.3
35-44	171,233	1,202	0.7	56,849	33.2	98,217	57.4	7,451	4.3	7,514	4.4
45-64	215,045	6,055	2.8	106,699	49.6	88,390	41.1	8,179	3.8	5,722	2.7
65 and over – et plus	92,802	6,220	6.7	54,113	58.3	28,713	30.9	2,413	2.6	1,343	1.5
Males – Hommes	406,097	7,426	1.8	170,524	42.0	197,256	48.6	13,843	3.4	17,106	4.2
15-19	16,211	223	1.4	6,080	37.5	9,782	60.3	126	0.8	–	–
20-24	39,509	252	0.6	10,022	25.4	26,937	68.2	1,657	4.2	641	1.6
25-34	98,309	656	0.7	29,695	30.2	58,036	59.0	4,088	4.2	5,834	1.6
35-44	86,835	587	0.7	31,459	36.2	45,826	52.8	3,299	3.8	5,664	6.5
45-64	114,646	2,577	2.3	61,703	53.8	42,905	37.4	3,459	3.0	4,002	3.5
65 and over – et plus	50,687	3,131	6.2	31,565	62.3	13,810	27.2	1,216	2.4	965	1.9
Females – Femmes	378,635	8,210	2.2	124,222	32.8	221,205	58.4	18,037	4.8	6,961	1.8
15-19	17,691	200	1.1	3,797	21.5	13,397	75.7	291	1.7	6	--
20-24	42,623	255	0.6	6,751	15.8	32,356	75.9	2,660	6.3	601	1.4
25-34	91,409	573	0.6	20,740	22.7	62,673	68.6	5,017	5.5	2,406	2.6
35-44	84,398	615	0.7	25,390	30.1	52,391	62.1	4,152	4.9	1,850	2.2
45-64	100,399	3,478	3.5	44,996	44.8	45,485	45.3	4,720	4.7	1,720	1.7
65 and over – et plus	42,115	3,029	7.3	22,548	53.5	14,993	35.4	1,197	2.9	378	0.9

Table 13 provides a bench-mark for assessing the educational levels of the province in 1961. For the population 15 years of age or over, 784,832,

15,636 or 2.0% reported no schooling.

294,746 or 37.5% reported reaching elementary level.

418,501 or 53.3% reported reaching secondary levels.

31,882 or 4.1% reported reaching university.

24,067 or 3.1% reported attaining a university degree.

Presumably, persons who had attended college-level non-university programs would be included in the secondary level, so that the educational assessment would be somewhat understated.

If an objective of the college system was to provide secondary-level education to that part of the population over 15 years of age and not attending school, exclusive of those persons 45 and over, and exclusive of those 25 and over who had some secondary school, then the number of potential students in 1961 would have been 340,746.

Table 14 provides a comparative basis for reviewing rates of school attendance in Canada and Alberta from 1931 to 1961. To make comparisons requires the assumption that the populations were composed of similar age-groups, i.e. Alberta's population was not generally younger no older than the Canadian distribution.

On that assumption, participation in Alberta slightly exceeded the Canadian rate until 1951 and equalled it in 1961. Participation of ${}_{5}P_{9}$ was lower in Alberta because of absence of kindergartens. Participation of ${}_{10}P_{14}$ has been slightly higher in early years but nearly equal in

Table 14

10-35

TABLE 1. Number and per cent of the population 5-24 years of age attending school, by age group and sex, for Canada and the provinces, 1931-1961

TABLEAU 1. Chiffre et pourcentage de la population âgée de 5 à 24 ans fréquentant l'école, par groupe d'âge et sexe, Canada et provinces, 1931-1961

Age and sex — Âge et sexe	1931			1941			1951			1961		
	Total	At school — À l'école		Total	At school — À l'école		Total	At school — À l'école		Total	At school — À l'école	
		Number — Nombre	%		Number — Nombre	%		Number — Nombre	%		Number — Nombre	%
CANADA[1]	4,157,576	2,155,249	51.8	4,299,158	2,170,162	50.5	4,673,221	2,411,418	52.2	6,551,726	4,299,131	65.6
5- 9	1,132,749	777,235	68.6	1,045,820	697,989	66.7	1,397,825	909,966	65.1	2,079,522	1,565,257	75.3
10-14	1,074,051	1,002,511	93.3	1,100,877	1,037,657	94.3	1,130,783	1,051,089	93.0	1,855,999	1,801,439	97.1
15-19	1,039,591	349,706	33.6	1,120,035	396,717	35.4	1,057,972	427,662	40.4	1,432,559	838,263	58.5
20-24	911,185	25,797	2.8	1,032,426	37,799	3.7	1,088,641	52,681	4.8	1,183,646	94,152	8.0
Males — Hommes	2,104,409	1,085,151	51.6	2,168,564	1,090,430	50.3	2,358,710	1,250,008	53.0	3,328,174	2,232,354	67.1
5- 9	572,507	391,322	68.4	529,092	351,736	66.5	713,873	463,040	64.9	1,063,840	799,221	75.1
10-14	542,930	507,665	93.5	556,304	524,163	94.2	575,122	535,473	93.1	948,160	920,185	97.0
15-19	525,250	169,394	32.2	565,212	191,190	33.8	532,186	216,906	40.8	729,035	446,341	61.2
20-24	463,722	16,770	3.6	517,956	23,341	4.5	537,535	31,589	6.4	587,139	66,607	11.3
Females — Femmes	2,053,167	1,070,098	52.1	2,130,594	1,079,732	50.7	2,316,511	1,191,410	51.4	3,223,552	2,066,777	64.1
5- 9	560,242	385,913	68.9	516,728	346,253	67.0	683,952	446,926	65.3	1,015,682	766,036	75.4
10-14	531,121	494,846	93.2	544,573	513,494	94.3	555,661	515,616	92.8	907,339	881,254	97.1
15-19	514,341	180,312	35.1	554,623	205,527	37.0	525,792	210,776	40.1	703,524	391,942	55.7
20-24	447,463	9,027	2.0	514,470	14,458	2.8	551,105	18,002	3.3	596,507	27,545	4.6
Alberta	299,837	161,510	53.9	305,523	161,847	53.0	319,428	173,966	54.5	477,594	313,486	65.6
5- 9	81,104	52,159	64.3	75,848	46,579	61.4	93,063	59,634	64.1	159,053	113,695	71.5
10-14	79,484	76,743	96.6	77,703	75,039	96.6	76,897	73,638	95.8	130,353	127,566	97.9
15-19	74,151	30,807	41.5	78,358	36,435	46.5	73,941	37,182	50.3	99,004	65,102	65.8
20-24	65,098	1,796	2.8	73,614	3,794	5.2	75,527	3,512	4.6	89,154	7,022	7.9
Males — Hommes	153,549	80,280	52.3	154,482	80,074	51.8	162,751	88,039	54.1	243,012	162,511	66.9
5- 9	40,713	26,141	64.2	38,425	23,500	61.2	47,528	30,358	63.9	81,633	58,295	71.4
10-14	40,458	39,071	96.6	39,198	37,817	96.5	39,008	37,328	95.7	66,560	65,147	97.9
15-19	37,677	14,070	37.3	39,335	16,863	42.9	37,882	18,160	47.9	50,296	34,085	67.8
20-24	34,701	998	2.9	37,524	1,894	5.0	38,333	2,193	5.7	44,403	4,894	11.0
Females — Femmes	146,288	81,230	55.5	151,041	81,773	54.1	156,677	85,927	54.8	234,582	150,975	64.4
5- 9	40,391	26,018	64.4	37,423	23,079	61.7	45,535	29,276	64.3	77,420	55,411	71.6
10-14	39,026	37,677	96.5	38,505	37,222	96.7	37,869	36,310	95.8	63,703	62,419	98.0
15-19	36,474	16,737	45.9	39,023	19,572	50.2	36,059	19,022	52.8	48,708	31,017	63.7
20-24	30,397	798	2.6	36,090	1,900	5.3	37,194	1,319	3.5	44,751	2,128	4.8

1961. Participation of ${}_{15}P_{19}$ has been up to 30 percent higher in early years but only 15 percent higher in 1961.

Participation of ${}_{20}P_{24}$ was equal in 1931, higher in Alberta than Canada in 1941, and slightly lower in Alberta than Canada in 1951 and 1961.

Table 15 indicates the extent to which offsprings of those occupational groups which report higher earnings also secure greater access to higher education. For example, if a person were in the 19-24 age group in 1961, the probability of his being a student was 50 percent if the head of his household earned $7000+ while it was only 12 percent if the head earned under $3000.

The second portion of the table indicates the extent to which offsprings of specific categories of occupational groups secure greater access to higher education. For example, if a person were in the 19-24 age group in 1961 and the head of the household were a physician or surgeon, the probability of his being a student was 73.6 percent, whereas if the head were a clerk the probability was 23.9 percent, if a fisherman then 9.5 percent.

The general correlation between level of educational attainment and reported earnings is documented in Table 16.

These latter tables have been included as base information only, and are not directly related to enrolment projections.

Table 15

TABLE X. Wage-earner families by earnings and age of head, and families with heads in specified occupations, showing the percentage of children attending school, aged 15-18 and 19-24 years, for Canada, 1961

TABLEAU X. Familles salariées suivant le gain et l'âge du chef et familles dont les chefs ont une profession déterminée et pourcentage d'enfants âgés de 15 à 18 et de 19 à 24 ans fréquentant l'école, Canada, 1961

Earnings and age of head — Gain et âge du chef	% of children at school — % d'enfants à l'école		Specified occupations of head — Profession déterminée du chef	% of children at school — % d'enfants à l'école	
	15-18 years — ans	19-24 years — ans		15-18 years — ans	19-24 years — ans
All wage-earner family heads — Tous chefs de famille salariés	72.5	21.3	All occupations — Toutes professions	72.4	21.9
Under 35 years — Moins de 35 ans	68.2	9.6	Managerial occupations — Administrateurs	84.3	37.8
35-44 years — ans	74.9	21.6			
45-54 " "	71.9	22.3	Professional engineers — Ingénieurs professionnels	91.9	57.0
55 years and over — ans et plus	69.0	19.7	School teachers — Instituteurs	92.6	57.9
Under $3,000 — Moins de $3,000	60.9	12.0	Physicians and surgeons — Médecins et chirurgiens	94.9	73.6
Under 35 years — Moins de 35 ans	61.3	6.5			
35-44 years — ans	63.2	12.8	Accountants and auditors — Comptables et vérificateurs	90.7	46.0
45-54 " "	59.8	12.0			
55 years and over — ans et plus	60.0	11.8	Clerical occupations — Employés de bureau	77.8	23.9
$3,000 – $4,999	72.3	18.4	Commercial travellers — Voyageurs de commerce	84.0	33.4
Under 35 years — Moins de 35 ans	70.2	10.5			
35-44 years — ans	74.5	19.6	Policemen and detectives — Agents de police et détectives	77.9	21.3
45-54 " "	71.2	18.7			
55 years and over — ans et plus	70.7	17.5	Taxi drivers and chauffeurs — Conducteurs de taxi et chauffeurs	63.7	12.5
$5,000 - $6,999	81.7	29.4	Farmers and stockraisers — Cultivateurs et éleveurs	66.7	15.2
Under 35 years — Moins de 35 ans	75.2	15.5			
35-44 years — ans	83.3	29.4	Fishermen — Pêcheurs	57.3	9.5
45-54 " "	81.1	29.8			
55 years and over — ans et plus	79.4	28.6	Carpenters — Charpentiers-menuisiers	68.0	15.5
$7,000 and over — et plus	90.7	50.0	Mechanics and repairmen, motor vehicle — Mécaniciens et réparateurs d'automobiles	70.5	16.5
Under 35 years — Moins de 35 ans	80.6	28.8			
35-44 years — ans	91.1	47.7	General foremen in construction — Contremaîtres de la construction	71.8	17.5
45-54 " "	90.7	50.6			
55 years and over — ans et plus	89.8	49.4	Non-farm labourers, n.e.s. — Manoeuvres non agricoles, n.c.a.	58.7	9.8

Table 16

TABLE XVIII. Percentage distribution by earnings group of wage-earners, classified according to sex, highest level of schooling and age group, for Canada, 1961

TABLEAU XVIII. Répartition procentuelle par catégorie de gain des salariés classés suivant le sexe, le degré d'instruction et le groupe d'âge, Canada, 1961

Schooling, sex and age — Degré d'instruction, sexe et âge	Total wage-earners — Total, salariés	Total wage-earners reporting earnings — Total, salariés déclarant un gain	Percentage distribution by amount of earnings reported — Répartition procentuelle suivant le montant du gain déclaré									Median earnings — Gain médian
			-$1,000	$1,000-1,999	$2,000-2,999	$3,000-3,999	$4,000-4,999	$5,000-5,999	$6,000-6,999	$7,000-9,999	$10,000+	$
Males — Hommes												
Elementary — Élémentaire	1,580,242	1,523,108	11.6	15.3	20.6	25.6	16.4	6.7	2.2	1.3	0.3	3,000
15-24	221,898	214,624	29.8	27.4	23.5	13.5	4.3	1.1	0.3	0.1	0.0	1,737
25-44	744,818	722,053	7.7	12.9	20.4	23.1	19.3	7.8	2.4	1.2	0.2	3,316
45 and over — et plus	613,526	586,431	9.7	13.7	19.7	26.9	17.4	7.5	2.8	1.8	0.5	3,256
Secondary — Secondaire	1,844,457	1,762,909	7.9	8.2	13.2	21.5	21.9	13.6	6.6	5.3	1.8	3,960
15-24	435,981	421,524	24.1	19.0	24.1	20.4	8.9	2.5	0.7	0.3	0.0	2,287
25-44	972,093	921,598	2.5	4.4	9.5	22.4	27.8	17.8	8.2	5.9	1.5	4,401
45 and over — et plus	436,383	419,737	3.6	5.6	10.5	20.7	22.1	15.2	9.1	9.0	4.2	4,435
University — Université	356,821	336,016	9.0	6.5	5.4	9.6	12.1	12.8	11.8	20.4	12.4	5,575
15-24	60,817	57,751	37.3	22.5	10.9	12.8	8.8	5.0	1.8	0.7	0.2	1,565
25-44	203,263	191,560	3.2	3.1	3.9	8.6	13.5	16.0	15.4	25.3	11.0	6,105
45 and over — et plus	92,741	86,705	2.8	3.5	5.1	9.6	11.3	10.8	10.3	22.8	23.8	6,604
Females — Femmes												
Elementary — Élémentaire	435,515	409,081	34.6	35.5	22.0	6.4	1.3		0.2			1,433
15-24	102,480	98,903	43.8	38.0	15.1	2.7	0.3		0.1			1,163
25-44	174,167	164,066	30.7	34.5	25.1	8.1	1.5		0.1			1,560
45 and over — et plus	158,868	146,112	32.7	34.8	23.4	7.1	1.7		0.3			1,495
Secondary — Secondaire	1,013,942	951,216	22.3	22.4	29.5	19.0	6.2		0.6			2,181
15-24	373,526	350,334	28.1	25.8	32.6	12.2	1.2		0.1			1,847
25-44	420,347	391,369	19.2	19.5	28.4	24.3	8.0		0.6			2,398
45 and over — et plus	226,069	209,513	18.1	22.2	26.3	20.6	11.3		1.5			2,368
University — Université	130,000	114,816	16.1	10.1	15.9	23.4	25.0		9.5			3,340
15-24	35,919	32,569	33.6	11.5	20.6	24.4	9.6		0.3			2,234
25-44	56,653	49,981	9.6	9.7	14.5	25.8	31.0		9.4			3,628
45 and over — et plus	37,423	32,266	8.4	9.2	13.1	13.9	31.4		19.0			4,023

ENROLMENT AND PARTICIPATION

This section provides a description of some of the patterns of participation in post-secondary education. Regular sources of historical data are available only for the university and public school sectors. Establishment of a time series of data for the college level has lagged behind college emergence, but some special studies provide descriptions of recent operation.

Enrolment Ratios

Enrolment ratios are based on a population age group and are most useful for describing enrolments and for comparing relative services provided over a time period. In the post-secondary sector, the chosen base is most frequently the number of persons of ages 18-24 inclusive ($_{18}P_{24}$). The statistic is expressed as the percent which the enrolment is of the number of persons in the age group, although the actual students may be of ages outside the 18-24 range. Further, an enrolment ratio does not provide an indication of successful servicing of participating populations nor of the nature of programs.

University Enrolment Ratios

Statistics on university enrolments have been compiled by the Economic Council of Canada (Zsigmond, 1970) and have been reported by the Alberta Universities Commission. Table 17 compares the statistical reports from both sources from 1959-60 to 1960-70. The Economic Council statistics have been consistently higher than those of the Universities Commission by

Table 17

Enrolment at Alberta Universities
1959-60 to 1971-72

Year	Source	
	E.C.C.[1]	A.U.C.[4]
1959-60	6,215	6,021
1960-61	7,268	7,150
1961-62	8,499	8,251
1962-63	9,837	9,149
1963-64	11,079	10,293
1964-65	12,977	11,921
1965-66	14,749	13,542
1966-67	16,983	15,597
1967-68	19,688	18,645
1968-69	24,920[2]	22,976
1969-70	30,000[3]	26,577
1970-71	34,600	28,991
1971-72	38,000	29,318[5]

[1] Source: Zsigmond, Wenaas, 1970: 146-147.

[2] Preliminary.

[3] Projected.

[4] Source: AVC Annual Report, 1971: 30.

[5] Preliminary.

approximately nine percent, which may be a reflection of withdrawal rates between September and the December first date for audited counts of the Commission.

Statistics on college-level enrolments are more difficult to obtain and to reconcile because of variations in inclusions and reporting practicies. Table 18 provides comparative reports from various sources for full-time students of public and private colleges, technical institutes, agricultural and vocational colleges, and schools of nursing. However, such a listing excludes students in government-operated vocational training centers (for adults), the forestry technology school, orderly and nursing aide schools operated by the government, apprenticeship training institutions, and proprietary trade schools. If the latter group were included, in 1971 the enrolment would have been reported as 32,467 instead of 13,791 (Fisher, 1971), although it must be recognized that many programs are of short duration (e.g., apprentices, 4-12 weeks).

On the basis of preceding statistics, enrolment ratios were calculated for the period 1966-1971 and are reported in Table 19. The recent rapid rise in participation at both university and college levels is evident from the tables. For the 1971-72 year, the decline in university enrolment does not appear to have been compensated by increased college-level enrolments.

Table 18

Non-University Enrolments, Alberta
1959-60 to 1971-72

Year	E.C.C.	Clarke[4]	Fisher[5]
1959-60	2,267[1]		
1960-61	2,486		
1961-62	2,729		
1962-63	2,923		
1963-64	3,411		
1964-65	4,049		
1965-66	4,624		
1966-67	5,312	8,366	
1967-68	6,948	10,566	
1968-69	8,510[2]	12,070	
1969-70	10,510[3]	12,818	
1970-71	12,350	13,967	13,971
1971-72	14,150		

[1] Source: Zsigmond & Wenaas, 1970: 147, includes "enrolment in nurses' diploma ocurses and post-secondary enrolment in institutions such as technical institutes and community colleges.

[2] Preliminary.

[3] Projected.

[4] Clarke, 1971: 119-121, for public and private colleges, technical institutes, ag. and voc. colleges, and nursing schools.

[5] Fisher, 1971: 8-15, as in (4) above.

Table 19

Full-Time Enrolment Ratios in Post-Secondary Education, Alberta, 1966-1972

Year	Total Alberta Population	Population ${}_{18}P_{24}$	University Enrolment	U/T %	$U/{}_{18}P_{24}$ %	College-Level Enrolment	C/T %	$C/{}_{18}P_{24}$ %
1966-67	1,463,000	153,000	15,600	1.07	10.19	8,370	0.57	5.47
1967-68	1,488,000	160,000	18,640	1.25	11.65	10,570	0.71	6.61
1968-69	1,517,000	167,000	22,980	1.51	13.76	12,070	0.80	7.23
1969-70	1,546,000	173,000	26,580	1.72	15.36	12,830	0.83	7.41
1970-71	1,577,000	181,000	28,990	1.84	16.02	13,970	0.88	7.72
1971-72	1,608,000	189,000	29,318	1.82	15.51			

Other Descriptors

Age. No single source adequately provides a description of enrolments by age. However, some studies have been completed at each level. Table 20 provides information on distribution of students by age at various types of institutions for selected years.

It is evident that the institutions primarily serve the persons who have completed or are completing the equivalent of high school graduation and, in some cases, may provide routes alternative to the public secondary system for such completion. Second, the major proportion of students are those who are extending their formal education without lapses for employment or other activities. Third, students who appear to be engaged in upgrading, retraining, or extension of prior education after considerable time lapse since attending secondary school do form a noticeable segment of the service population. It may be that many of this latter group reflect the sponsorship of federal and provincial assistance programs.

Sex. In Canada, the proportion of female students at university, although still a decided minority, has been increasing from about 28 percent in 1951-52 to 36 percent in 1967-68 (Zsigmond & Wenaas, 1970: 66). Similar proportions are reported for the non-university sector in 1967-68; and enrolment for 1980-81 is projected to be comprised of 42 percent females (p. 67). The review of distribution of students at specific types of institutions by sex in Table 21 shows considerable

Table 20

Distribution of Students at Post-Secondary Institutions by Age, for Selected Years

Year	Institution	No. of Students	Age Group as Percent of Students					Total
			18^P	18^P19	20^P24	25^P39	40^P	
1969-70	Universities[1]	26,427	2.6	30.5	46.3	18.1	2.5	100.0
1969	Public Colleges[2]	1,448	3.7	43.6	40.2	12.5	-	100.0
1968	Agricultural & Vocational Colleges[3]	417	8.2	41.0	37.7	13.2	-	100.0
1968	Technical Institutes[4]	2,625	2.5	36.3	50.3	10.9	-	100.0
	Non-University[5]		3.0	40.0	45.0	12.0	-	100.0

Sources: [1] Universities Commission statistical reports.

[2] Letts (1970) computed from aggregates.

[3] Letts (1970) computed from aggregates.

[4] Schindelka (1970) computed from aggregates.

[5] Estimated from 2, 3, and 4, but excludes nursing.

variation and indicates that some types of programs are heavily oriented towards male participation. Care must be taken not to make unwarranted inferences from the data since several public colleges were at a very early stage of development and enrolment patterns may have changed since that time.

Table 21

Distribution of Students at Post-Secondary Institutions by Sex, for Selected Years

Year	Institution	Number of Students	Male %	Female %
1969-70	Universities	26,557	62.38	37.61
1969	Public Colleges	1,448	56.97	43.03
1968	Agricultural & Vocational Colleges	416	73.79	26.21
1968	Technical Institutes	2,615	82.56	17.44

SOURCES: As in Table 20.

NOTE: 1. Zsigmond & Wenaas report distribution for non-university sector (including nursing schools) to be fairly constant at 54 percent to 57 percent males (p. 147).

2. At SAIT, the male-female ratio was 9:1; at NAIT, 4:1.

Regional Distribution

A special study was conducted to ascertain the origins of students at post-secondary institutions, and subsystems according to the student listing of "home or permanent" addresses. In order to use age-group bases, distribution of census division of listed home address was selected.

The findings of this survey have been summarized in another report (Chamchuk, 1972: OC-13). Three summary tabulations are included for this paper. Table 22 reports actual full-time enrolments by type of institution, by census division and for other provinces and countries. Table 23 reports the enrolment ratios by census division and within census divisions by type of institution attended. Table 24 reports enrolment ratios (as percent of the 18-24 population of each census division attending specific types of institutions.

Projections of enrolment are based on projections of age 18-24 population by census division from 1970 to 2005 which were reported previously in Table 6 (c.f. supra p. 18). Subsequent projections for single years from 1970-75 were based on population projections interpolated between 1970 and 1975.

Figure 6 reports the projected Alberta populations by single year of age (from ABS, 1968 to 1971).

Table 22

Full-Time Enrolments Reported by Public Post-Secondary Institutions, Alberta, Fall 1971, by Census Division

Census Division[1]	Institution Level				
	Technical Inst.	Ag & Voc Colleges	Public Colleges	Universities[2]	Total
1. Medicine Hat	101	11	398	413	923
2. Lethbridge	137	38	641	1,604	2,420
3. Cardston	47	8	198	349	602
4. Hanna	59	18	36	108	221
5. Drumheller	111	30	82	296	519
6. Calgary	1,755	94	2,167	7,812	11,828
7. Wainwright	145	34	58	298	535
8. Red Deer	224	43	607	676	1,550
9. Mountains	59	1	37	185	282
10. Camrose	271	62	77	844	1,254
11. Edmonton	2,041	44	590	12,023	14,698
12. Fort McMurray	139	43	34	377	593
13. Athabasca	186	22	33	353	594
14. Edson	48	6	15	154	223
15. Peace River	167	103	334	515	1,119
Sub-Total	5,490	557	5,307	26,007	37,358
Other Provinces	783	76	634	1,777	3,270
Other Countries	163	9	167	1,210	1,549
TOTAL	6,436	642	6,108	28,991	42,177

[1] C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

[2] University enrolments are for the 1970-71 year. No appreciable changes in magnitude or pattern were expected for 1971-72.

Table 23

Enrolment Ratios in Public Post-Secondary Educational Institutions in Alberta, Fall 1971, by Census Division

Census Division[1]	Alberta 18^{P}24 for 1970[2]	Enrolment Ratio Full-Time Students	Proportions by Type of Institution (Percent)				
			Tech. Inst.	Ag & Voc.	Pub. Col.	Univ.	Total
		%					
1. Medicine Hat	5,000	18.46	11	1	43	45	100
2. Lethbridge	11,200	21.61	6	2	26	66	100
3. Cardston	4,000	15.05	8	1	33	58	100
4. Hanna	1,800	12.28	27	8	16	49	100
5. Drumheller	4,300	12.07	21	6	16	57	100
6. Calgary	49,800	23.75	15	1	18	66	100
7. Wainwright	4,900	10.92	27	6	11	56	100
8. Red Deer	10,700	14.48	14	3	39	44	100
9. Mountains	2,100	13.42	21	0	13	66	100
10. Camrose	8,900	14.09	22	5	6	67	100
11. Edmonton	64,400	22.82	14	0	4	82	100
12. Fort McMurray	6,800	8.72	23	7	6	64	100
13. Athabasca	5,600	10.61	31	4	6	59	100
14. Edson	2,500	8.92	22	2	7	69	100
15. Peace River	11,200	9.99	15	9	30	46	100
Total	193,200						
Average		19.34	15	1	14	70	

[1] C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

[2] Population aged 18-24 inclusive for 1970 calculated from Seastone, 1971.

Table 24

Enrolment Ratios in Post-Secondary Institutions by Type of Institution

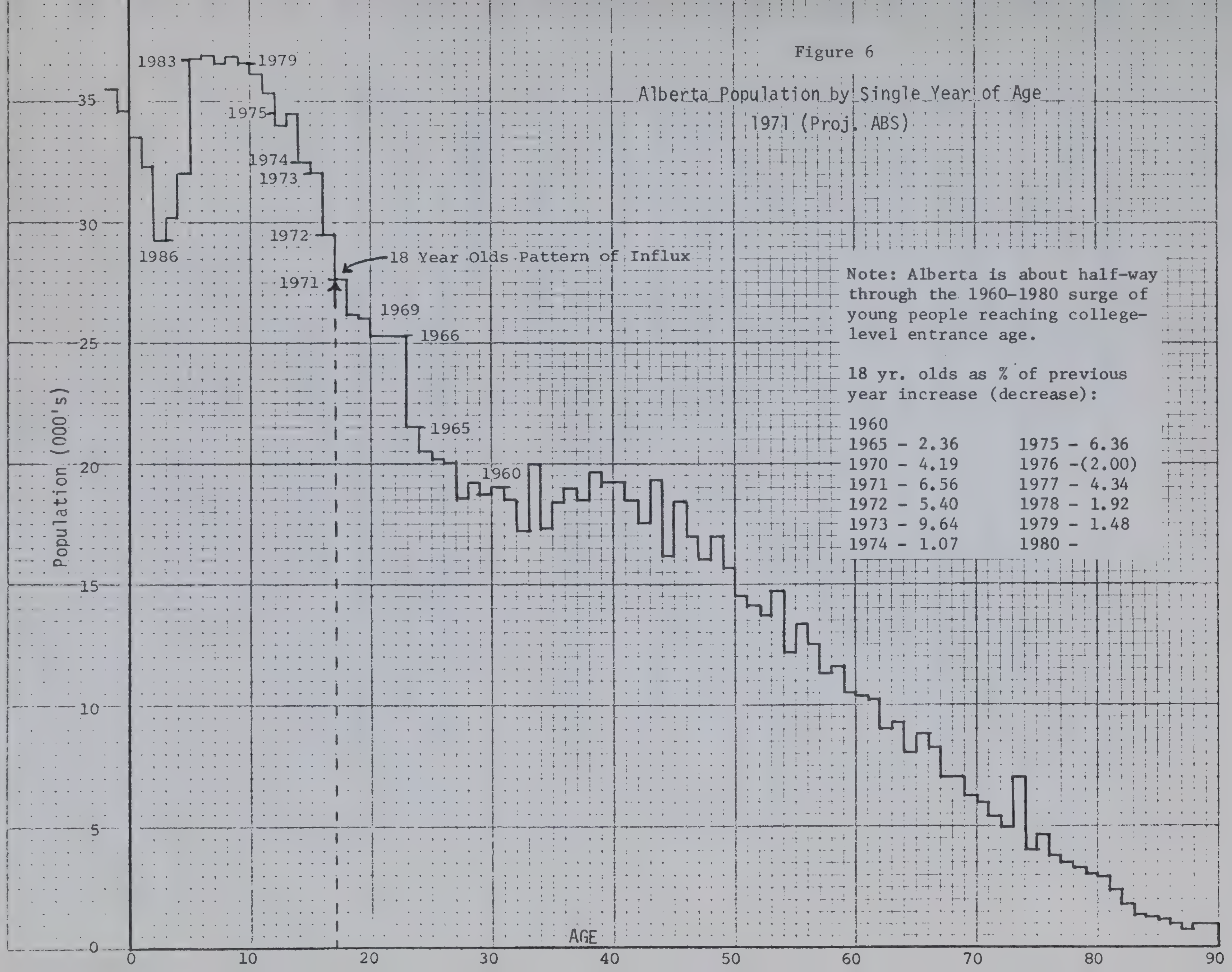
Census Division	Type of Institution			
	Technical Institutes	Ag. & Voc. Colleges	Public Colleges	Universities
1. Medicine Hat	2.02	0.22	7.96*	8.26
2. Lethbridge	1.22	0.34	5.72*	14.32*
3. Cardston	1.18	0.20	4.95	8.72
4. Hanna	3.28	1.00	2.00	6.00
5. Drumheller	2.58	0.70	1.91	6.88
6. Calgary	3.52*	0.19*	4.35*	15.69*
7. Wainwright	2.96	0.69*	1.18	6.08
8. Red Deer	2.09	0.40	5.67*	6.32
9. Mountains	2.81	0.05	1.76	8.80
10. Camrose	3.04	0.70*	0.86	9.48
11. Edmonton	3.17*	0.07	0.91*	18.67*
12. Fort McMurray	2.04	0.63	0.50	5.19
13. Athabasca	3.32	0.39	0.59	6.30
14. Edson	1.92	0.24	0.60	6.16
15. Peace River	1.49	0.92*	2.98*	4.60
Average	2.84	0.28	2.74	13.46

*Institutional centers.

Note: Inclusion of enrolments in private colleges, chiefly Camrose and Edmonton would likely have resulted in higher ratios for those C.D.'s.

Figure 6

Alberta Population by Single Year of Age
1971 (Proj. ABS)



Note: Alberta is about half-way through the 1960-1980 surge of young people reaching college-level entrance age.

18 yr. olds as % of previous year increase (decrease):

1960
1965 - 2.36
1970 - 4.19
1971 - 6.56
1972 - 5.40
1973 - 9.64
1974 - 1.07
1975 - 6.36
1976 -(2.00)
1977 - 4.34
1978 - 1.92
1979 - 1.48
1980 -

A pertinent observation related to Figure 6 is that although general population increase in Alberta is estimated at 2 percent per year, and although the population of those aged 18-24 is estimated to increase at between 6 percent and 8 percent until 1980, the phase effects of 18-year olds entering the category of potential post-secondary students fluctuates appreciably. Numbers were relatively constant for 1966-68, and increased slightly to another constant for 1969 and 1970. From 1970 to 1979, annual increases will fluctuate between 1 percent and 10 percent, with possible direct implications for the number of first-year registrants that may be expected in any particular year. It may be that the apparent plateau in university registrations in 1971 is more a reflection of age 18 population size rather than change in aspirations for education or disenchantment with the nature of services provided.

In 1971, Alberta is about half-way through the surge of 18-year olds for the 1965-1980 period.

Future Projections

There is no end to the way in which findings of the survey report may be manipulated to generate calculations of future enrolment projects. Nor is there any suggestion that projections assume the characteristics of predictions. However, some qualified projections seem desirable and possible.

Projected Average Rate Full-Time Enrolment

Population projections provided by Seastone and others indicate that Alberta is part way through a population bulge of 18-year olds entering post-seocndary education or the labor force. The projects indicate that the bulge will peak in the early 1980's, will decrease for the following decade, and will then increase again (see Figure 6).

If the population projections are accurate, and if post-secondary education services are to be provided at enrolment ratios constant with the 1971 rates, then Table 25 reports the number of Albertans that require service and Table 26 reports the total enrolment inclusive of non-Albertans by total and type of institution.

Annual enrolment increases between 5 percent and 6 percent may be anticipated until 1975, with increases at approximately 3 percent until 1980, stable enrolments until 1985, and decreases at nearly 2 percent annually until 1990.

Table 25

Projected Average-Rate Full-Time Enrolments, Albertans, by Subsystem, Annually, 1972-73 to 1975 and at 5 Year Intervals Thereafter to 2005

Year	Projected $_{18}P_{24}$ (000's)	% Increase Over Previous Year	Projected Enrolment				
			Total	Technical	Ag & Voc Colleges	Colleges	Universities
1971-72	193		37,358	5,490	557	5,307	26,007
1972-73	205	6.22	39,647	5,867	595	5,630	27,594
1973-74	216	5.36	41,774	6,182	627	5,932	29,075
1974-75	228	5.56	44,095	6,526	661	6,262	30,690
1975	240	5.26	46,416	6,869	696	6,591	32,305
1980	273	2.75	52,798	7,814	792	7,497	36,748
1985	266	(0.06)	51,444	7,614	772	7,305	35,805
1990	246	(1.63)					
1995	277	1.51	Projections beyond 1985 were not calculated since proportions are likely to change by that time.				
1999	312	2.80					
2005	352	1.89					

NOTE: A special survey for fall 1971 established full-time enrolment ratios of 19.34% with distribution as 14.8% technical, 1.5% agricultural-vocational, 14.2% college, and 69.6% university. The above projections are based on these indices applied to $_{18}P_{24}$ projections produced by Seastone.

Table 26

Projected Average-Rate Full-Time Enrolments, by Subsystem, Annually, 1972-73 to 1975, and at 5 Year Intervals Thereafter to 2005; Including Non-Albertans and Residents of Other Countries

Year	Projected $18^{P}24$ (000's)	% Increase Over Previous Year	Projected Enrolment				
			Total	Technical	Ag & Voc Colleges	Colleges	Universities
1971-72	193		42,177	6,436	642	6,108	28,991
1972-73	205	6.22	44,800	6,836	682	6,488	30,794
1973-74	216	5.36	47,202	7,203	718	6,836	32,445
1974-75	228	5.56	49,684	7,603	758	7,216	34,249
1975	240	5.26	51,050	8,003	798	7,595	36,050
1980	273	2.75	52,454	8,223	820	7,803	37,041
1985	266	(0.06)	49,306	7,729	771	7,334	34,818
1990	246	(1.63)					
1995	277	1.51	Projections beyond 1985 were not calculated since proportions are likely to change by that time.				
1999	312	2.80					
2005	352	1.89					

NOTE: A special survey for fall 1971 established full-time enrolment ratios of 21.83% with distribution as 15.2% technical, 1.5% agricultural-vocational, 14.2% college, and 68.7% university. The above projections are based on these indices:

	Albertans	Other Provinces	Other Countries	Total
Tech. Institutes	85.3%	12.2%	2.5%	100%
Ag.-Voc. Colleges	86.8	11.8	1.4	100
Public Colleges	86.9	10.4	2.7	100
Universities	89.7	6.1	5.3	100
Average	88.6	7.8	3.7	100

Comparisons

University. Enrolment projections reported below were prepared by the Universities Commission in August, 1970, based on population changes and assuming increased participation ratios.

Year	U. Commission Estimates[1] Low	Medium	High	Report[2]
1971-72	30,985	33,590	35,630	28,991
1972-73	33,545	37,365	40,535	30,794
1973-74	36,400	41,425	45,625	32,445
1974-75	38,855	44,630	49,935	34,249
1975	41,175	47,425	53,300	36,050
1980	49,385	58,615	66,945	37,041

Source: [1] Projections of the Universities Commission, August, 1970.

[2] Table 26.

Various other factors (withdrawal and failure rates, geographic inequities, etc.) may contribute to a justification for establishment of allocations of numbers of student places to each subsystem, and perhaps to each institution.

Public Colleges. Various projections have been made for college enrolments, based on high school enrolments, college growth, and participation rates. One projection (Fast, 1968: 24) identified total non-university enrolments as follows:

Year	Fast (Post-Sec.)	Fast/Fenske (for colleges)
1971-72	24,577	11,144
1972-73	29,531	13,800
1973-74	30,608	15,170
1974-75	30,120	16,540
1975-76	29,795	17,910
1976-77	30,108	19,280
1977-78	30,656	20,650

without attempting distributions by type or specific institution. A later report (Kolesar, August, 1970: 9) identified distributions as follows:

Year	Technical	Ag.-Voc.	Public Colleges	Total
1971-72	11,605	763	12,693	25,061
1972-73	12,445	808	17,064	30,317
1973-74	12,485	852	18,202	31,539
1974-75	12,525	910	17,871	31,406

In comparison with actual enrolments, it would appear that all previous projections have been somewhat high.

Geographic Inequities

A review of gross enrolment ratios in Table 23 confirms that the populations of urban and industrialized census divisions are much better served by the post-secondary system than are the rural, underdeveloped and sparsely-settled areas.

Table 27 reports calculated enrolments assuming that service ratios would be maintained at present rates for those C.D.'s above the provincial average (19.34%) and would be brought up to provincial average for those below. The table reports the actual and adjusted 1971 enrolments, together with projected enrolments based on the adjusted rate.

If enrolments from all census divisions were to reach the 1971 average, total enrolments would have been 13 percent higher than the actual 37,358.

If the adjusted rates were then maintained at a stable level corresponding to ${}_{18}P_{24}$ fluctuations, then subsequent enrolments would increase at 9 percent, 5 percent, 5 percent, and 4 percent from 1972 to 1975, thereafter increasing at 2.6 percent to 1980 and remaining stable to 1985.

To accommodate the population bulge currently entering the 18-24 age group in Alberta, enrolments in 1975 would be 40 percent higher than those in 1971. By 1980 they would have reached a level 60 percent higher than in 1971, but would decline to a level 56 percent higher by 1985.

Table 27

Projected Adjusted Full-Time Resident Enrolments in Selected Post-Secondary Sectors, 1971 - 1985[1]

Census Division[2]		Enrolment Ratio[3]	1971 Actual	1971 Adjusted	1972[4]	1973	1974	1975	1980	1985
1. Medicine Hat	5.0		923	967	1,063	1,102	1,141	1,179	1,218	1,025
2. Lethbridge	11.2	21.61	2,420	2,420	2,658	2,809	2,940	3,068	3,112	2,809
3. Cardston	4.0		602	774	812	851	889	909	870	754
4. Hanna	1.8		221	348	348	348	348	367	329	270
5. Drumheller	4.3		519	831	831	890	890	909	831	735
6. Calgary	49.8	23.75	11,828	11,828	13,205	13,893	14,582	15,271	18,477	18,786
7. Wainwright	4.9		535	948	1,005	1,050	1,050	1,044	948	909
8. Red Deer	10.7		1,550	2,069	2,224	2,320	2,418	2,495	2,610	2,418
9. Mountains	2.1		282	406	425	464	484	503	542	580
10. Camrose	8.9		1,254	1,721	1,721	1,759	1,779	1,818	1,682	1,412
11. Edmonton	64.4	22.82	14,698	14,698	16,247	17,024	18,027	18,598	21,861	21,770
12. Fort McMurray	6.8		593	1,315	1,450	1,508	1,585	1,663	1,856	2,050
13. Athabasca	5.6		594	1,083	1,044	1,141	1,121	1,160	1,044	967
14. Edson	2.5		223	483	560	580	600	618	773	773
15. Peace River	11.2		1,119	2,166	2,436	2,572	2,707	2,823	2,997	3,345
TOTALS[5]	193.2	19.34	37,358	42,057	46,029	48,311	50,561	52,426	59,150	58,603
Percent Increase Over Previous Year:				12.57	9.44	4.95	4.65	3.68	2.56	0.00
Percent Over 1971 Actual:				12.57	23.21	29.31	35.34	40.33	58.33	56.86

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[1] For aggregate of university, colleges, technical institutes, agricultural & vocational colleges only, for Alberta residents only.

[2] C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

[3] Adjusted rate at 19.34% unless otherwise indicated.

[4] For projected populations.

[5] To determine enrolments inclusive of students from other provinces and countries, numbers should be increased 12 - 15%.

Alternative Distributions

The preceding projections (Tables 25, 26) have reported gross full-time enrolments for the province without consideration of differential growth of subsystems. Universities, technical institutes and agricultural-vocational colleges may be considered as well-established and servicing the population according to demand. The college system includes several institutions which are relatively recent in origin, and provide a level of programs which may be considered in the developmental stage.

Assumptions. (1) Since the withdrawal and termination rate at university freshman and sophomore levels may be considered as high (24% of freshmen do not continue beyond first year, and an additional 9 percent do not continue beyond second year), there may be justification in establishing interim limits (for analytical purposes) on university enrolment at 1971 levels (29,000 full-time students) for a four-year period (until 1975) to eliminate the high proportion of inefficiencies caused by persons who do not complete programs.

(2) Since the relative importance of agriculture is decreasing, there may be justification in fixing the full-time enrolment at agricultural-vocational colleges at 1971 levels (650 students).

(3) Since technical institutes are well-established and may be deemed responsive to the manpower requirements of industry and business, enrolments to 1975 should be permitted to increase at rates at least consistent with population growth of the 18-24 age group as identified in Table 6 (c.f. supra. p. 18) or at rates somewhat higher.

(4) Since public colleges are at a stage where they may undertake the provision of programs for the service sector of manpower (health, social service, business education, and other non-technical paraprofessionals), they may be allocated the residual enrolment.

On the basis of the above assumptions and judgments, minimum enrolment levels are identified in Tables 28 and 29.

Table 28

Minimum Enrolment Projections by Institutional Type Assuming Continued Geographic Variation in Enrolment Ratios

Year	Enrolment				
	Total[1]	University	Ag & Voc Colleges	Technical	Colleges
1971-72[1]	42,177	28,991	642	6,436	6,108
1972-73	44,800	29,000	650	6,886 (7%)	8,264 (35%)
1973-74	47,202	29,000	650	7,300 (6%)	10,252 (24%)
1974-75	49,684	29,000	650	7,738 (6%)	12,296 (20%)
1975	51,050	29,000	650	8,202 (6%)	13,198 (7%)

[1] From Table 26.

Table 29

Enrolment Projections by Institutional Type
Adjusted to Equalize Geographic Variation
in Enrolment Ratios

Year	Enrolment				
	Total[1]	University	Ag & Voc Colleges	Technical	Colleges
1971-72[1]	42,177	28,991	642	6,436	6,108
1971-72[2]	47,057	29,000	650	7,080 (10%)	10,327 (69.0%)
1972-73	51,029	29,000	650	7,788 (10%)	13,591 (31.6%)
1973-74	53,311	29,000	650	8,566 (10%)	15,095 (11.0%)
1974-75	55,561	29,000	650	9,423 (10%)	16,488 (9.2%)
1975	57,426	29,000	650	10,365 (10%)	17,411 (5.5%)
1971 Ratio	100%	68.7%	1.5%	15.2%	14.4%
1975 Ratio	100%	50.4%	1.1%	18.0%	30.3%

[1] From Table 26 retaining non-residents constant at 5000 students in 1971.

[2] From Table 27.

For Table 30, university, agricultural-vocational, and technical enrolments were projected on the basis that such institutions were well-established and that enrolments should reflect population changes but not appreciable shifts in proportions being served.

The residual of enrolments were reported for the college system. Although the full adjustment is reported for the 1972-73 year, it is unlikely to occur in a single fiscal year, but may be reached as an objective by 1975. Thereafter, enrolments in all subsystems would more closely reflect changes in the number of persons in relevant age groups, and changes (if any) in the general rate of providing educational services.

Comparison to Gross Population Education Rates

Appreciably increased (and equitable) enrolment rates were projected in Table 29. The question may be raised: How many persons of the 18-24 age group are transferred into the Alberta labor force without one or more years of full-time post-secondary education?

Previous surveys have established that of the university enrolment, 33 percent are in first year; for college, technical and other two-year institutions, 60 percent are in first year. Using this distribution and assuming that all post-secondary students enter at age 18 and continue successively to complete their education, enables calculation of a residual who enter the labor force with no education beyond that attained at public school levels.

Because many students are in age groups higher than 18-24, the residual reported in Table 31 is likely to be appreciably below the actual residual.

Several other sources indicate that there are approximately 20,000

Table 30

Full-Time Enrolment Projections Assuming Equalization of Participation and Proportional Growth of All Subsystems

Year	Population Total[1] (millions)	Population 18-24[2] (thousands) n	Population 18-24[2] %	Enrolment I[3] (21.83%) (thousands)	Enrolment II[4] (24.19%) (thousands)	University[5] (thousands)	Ag.-Voc.[6] (thousands)	Tech. Institutes[7] (thousands) n	Tech. Institutes[7] % Incr.	Colleges[8] (thousands) n	Colleges[8] % Incr.
1971-72	1.588	193		42.2	46.7	29.0	.642	6.436		6.108	(+29)
1972-73		205	(+6.22)	44.8	49.6	30.8	.672	6.822	(+6)	11.306[9]	↓
1973-74		216	(+5.35)	47.2	52.3	32.4	.708	7.231	(+6)	11.961	
1974-75		228	(+5.56)	49.7	55.2	34.1	.745	7.665	(+6)	12.690	
1975	1.761	240	(+5.26)	51.0	58.2	36.0	.798	8.125	(+6)	13.277	
1976			(+2.75)					8.369	(+3)		(+8)
1977			↓					8.620	(+3)		↓
1978								8.878	(+3)		
1979								9.145	(+3)		
1980	1.958	273		52.4	65.7	37.0	.820	9.419	(+3)	18.461	
1981			(+0.06)					9.419	(+0)		(+2)
1982			↓								↓
1983											
1984											
1985	2.171	266		49.3	65.0	34.8	.771	9.419		20.010	

[1] Seastone, 1971:27.

[2] Table 23, calculated from Seastone.

[3] Chamchuk survey: Enrolments @ 21.83% of ${}_{18}P_{24}$; distribution: 68.7% university; 1.5% ag.-voc.; 15.2% technical; 14.5% college.

[4] Adjusted by projecting Lethbridge, Calgary, and Edmonton census division enrolment ratios at 21.61%, 23.75% and 22.82% respectively, and increasing other census division ratios to 19.34%, with 11% additional students as non-resident.

[5] Calculated as 68.7% of projected Enrolment I.

[6] Calculated as 1.5% of projected Enrolment I.

[7] Calculated to add average population changes at 6% for 1971-75, 3% for 1975-80, and 0% for 1980-85.

[8] Calculated as the residual between Enrolment II projections and enrolments for other subsystems.

[9] The adjustment to compensate for increased enrolment ratios is unlikely to be exercised in a single year as the table reports, but may be an objective reached by 1975 and maintained in subsequent years.

new entrants to the labor force each year.

Even with the high rates of growth used for projecting technical and college full-time enrolments (Tables 28-30), it is apparent that between 40 percent and 50 percent of new entrants to the labor force will do so without the benefit of education beyond that attained at public school. To remain at a rate of growth paralleling the growth of population in the 18-24 age group (Table 29) will have the effect of causing increasing numbers and proportions of young persons to enter the labor force without any post-secondary education.

Table 31

Residual Entrants to Labor Force Without Post-Secondary Education

	18 Year-Old Population (Thousands)				
		Table 28 (Minimum)		Table 29 (Equalized)	
Year	Projected	Enrolment	Residual	Enrolment	Residual
1971	28.0	17.8	10.2	17.8	10.2
1972	29.5	19.5	10.0	23.2	6.3
1973	32.3	20.9	11.4	24.1	7.7
1974	32.7	22.4	10.3	25.9	6.8
1975	34.7	23.2	11.5	27.0	7.7

NOTE: Table 28 projects enrolment stable at 29,000;
agricultural and vocational college stable at 650;
technical increasing at 7%, 6%, 6%, 6% annually;
colleges increasing at 35%, 24%, 20%, 7% annually.

Table 29 projects university and agricultural and vocational colleges as above;
technical increasing at 10% annually;
colleges increasing at 69%, 32%, 11%, 9%, 5%.

Institutional Distribution, College Level

The previous projections (Tables 26, 28, 29) have generated three sets of full-time enrolment projections for colleges:

Year	Table 26	Table 28	Table 29
1971	6,108	6,108	6,108
1972	6,488	8,264	13,591
1973	6,836	10,252	15,095
1974	7,216	12,296	16,488
1975	7,595	13,198	17,481

An additional task undertaken by this report is to suggest an allocation of full-time enrolments by college to foster equitable growth of all colleges and equitable access to geographic regions.

From the survey on service areas, for analytic purposes only, the following geographic regions for colleges may be established (see Figure 4, c.f. supra, p. 16):

Medicine Hat	C.D.1
Lethbridge	C.D.'s 2, 3, part of 5, part of 9
Mount Royal	C.D. 4, part of 5, 6, part of 9
Red Deer	C.D. 7, 8, 10
Grant MacEwan	C.D. 11, 12, 13, 14
Grande Prairie	C.D. 15

Implementing the previous allocations would have the following comparative and projective results:

Table 32

Projected Enrolments by College
Assuming Equalization Factors

	1971			1975			
		Enrolment					
	$18^{P}24$ (000's)	Actual	Allocated	$18^{P}24$ (000's)	Table[1] 26	Table 28	Table 29
Medicine Hat	5.1	372	398	6.1	193	335	442
Lethbridge	18.0	910	873	22.3	705	1,226	1,618
Mount Royal	55.0	2,507	2,288	70.1	2,219	3,854	5,084
Red Deer	24.5	843	742	27.7	876	1,521	2,008
Grant MacEwan	79.1	395	672	99.3	3,140	5,460[2]	7,200[2]
Grande Prairie	11.3	280	334	14.6	462	802	1,059
TOTAL	193.0	5,307	5,307	240.1	7,595	13,198	17,411

[1] Assuming enrolments established according to policy selections resulting in Table 26, Table 28, or Table 29.

[2] Because of the extensive geographic service area allocated to Grant MacEwan College, affiliated campuses in centers outside metropolitan Edmonton may require consideration.

[3] The status of private or denominationally-affiliated colleges has not been incorporated in allocations.

Recognition is given to the likely unacceptability to universities, agricultural and vocational colleges, and technical institutes of the assumptions leading to projections for their growth. However, it seems certain that enrolments will have to be maintained at the level projected in Table 27 and are likely to develop to levels below those projected in Table 29. The two sets of calculations provide credible upper and lower enrolment limits for planning and estimating purposes. Similarly, stringent applications of the projected allocations for colleges (Table 32) are likewise impracticable. However, the projections may suggest vectors of direction and magnitude of growth that should receive consideration by coordinating authorities. It must be further noted that students served by Alberta Vocational Centers, nursing schools, and other agencies should be added to the projections and allocations tabulated previously if these functions are to be transferred to the public college sector.

For cost estimation purposes, indices which reflect the marginal costs of part-time, continuing education, and community services, require accounting as well.

The implications for facilities and operational finance form the topics for other reports.

CONCLUSION

The preceding review has been conducted in an attempt to determine indices of service and to use such indices to anticipate service demands for full-time post-secondary education for the province and by service area. The resulting calculations suggest minimum full-time enrolments contingent upon maintaining service at current (1971) levels, or for compensating upward to equalize participation by geographic region (census division), while accounting for fluctuations in the population of age 18 and the group aged 18-24.

Table 33 summarizes ranges of full-time enrolment projections. The actual determination of enrolments is subject to demand for services, policy decisions of levels of fiscal support, and decisions of allocation of program areas among subsystems and within institutions.

Table 33

Enrolment Projection Ranges, 1972 - 1985, Selected Years

(in thousands)

Year	Total	University	Ag.-Voc.	Technical	College
	Low High	Low High	Low High	Low High	Low High
1971-72	42.2	29.0	0.6	6.4	6.1
1972-73	44.8 - 49.6	29.0 - 30.8	0.6 - 0.7	6.8 - 7.7	6.4 --13.6
1973-74	47.2 - 52.3	29.0 - 32.4	0.6 - 0.7	7.3 - 8.6	6.8 - 15.1
1974-75	49.7 - 55.2	29.0 - 34.2	0.6 - 0.7	7.7 - 9.4	7.2 - 16.5
1975	51.0 - 58.2	29.0 - 36.0	0.6 - 0.8	8.2 - 10.4	7.5 - 17.4
1980	52.4 - 65.7	30.0 - 37.3	0.6 - 0.9	8.4 - 11.8	7.8 - 15.7
1985	49.3 - 65.0	28.0 - 37.0	0.6 - 0.9	8.0 - 11.6	7.3 - 15.5

NOTE: The sum of low enrolments is less than the Low Total.
The sum of high enrolments is more than the High Total.

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